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WEIL'S DISEASE (LEPTOSPIROSIS)

A CLINICAL AND BACTERIOLOGICAL STUDY OF NINETEEN CASES OCCURRING CHIEFLY AMONG FISH WORKERS

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The occurrence in Minorca of an epidemic of jaundice was first described by Cleghorn in 1745. The publication by Weil in 1886 of an account of four cases of infectious jaundice led to the recognition of a symptom-complex of fever, jaundice, enlargement of the liver and spleen, the occurrence of haemorrhages, and, occasionally, febrile relapses under the designation of Weil's disease. Following the discovery of the *L. icterohaemorrhagiae* in the blood of a patient suffering from the Japanese form of the disease, and the proof of its specificity by Inada and Ido in 1915, the name "spirochaetosis icterohaemorrhagica" was suggested as a substitute for the many titles applied to this disease. Stokes and Ryle[1] in 1916 obtained bacteriological evidence of the existence of the disease among the British soldiers in Flanders; similar outbreaks were reported and confirmed among the German, French, and Italian troops on the Western Front.

The occurrence of spirochaetosis in the form of an acute febrile illness, without jaundice, was recognized.[2] In consequence it has been the practice of European workers to revert to the non-descriptive title of "Weil's disease," in preference to its synonyms laying emphasis on jaundice. Interest in the disease has increased in recent years in Holland, where in the past decade 452 cases have been observed, with a mortality of 10.2 per cent.[3] Infection occurs by bathing and by accidental or suicidal immersion in the canals; a higher occupational incidence is reported among bargemen and workers in abattoirs and other rat-infested premises.

Leptospiral Infection in Britain

Potential sources of infection in Britain are known to exist, the carrier rate in rats varying from four out of 101 rats in London[4] to thirty out of 100 in different parts of England.[5] Buchanan[6] found sixty-one infected rats out of a total of 166 from various parts of Scotland. In the light of these figures the reports of leptospiral infection in man are surprisingly few, and their authenticity is undoubted only in three outbreaks. Manson-Bahr[7] in 1922 described a case in a seaman four days after immersion in the Thames, the *L. icterohaemorrhagiae* being isolated from the blood. An outbreak of epidemic jaundice in 1923, among miners in certain wet pits in East Lothian, was described by Gulland and Buchanan,[8] the diagnosis in eighteen cases being based on the clinical features. Investigations by Buchanan resulted in proof of the leptospiral origin of the East Lothian epidemic, a guinea-pig inoculated from the urine of a patient dying with typical post-mortem findings and showing the *L. icterohaemorrhagiae* in its tissues. A total of thirty-one cases in all was later reported on the combined clinical and bacteriological findings.[6] The existence of the disease in Scotland among members of the community other than coal-miners, particularly those working in rat-infested areas—for example, near refuse dumps, piggeries, and breweries—was thus proved.

In May of this year the clinical diagnosis of a fatal case of Weil's disease, in a temporary sewer worker in London, was established by the recovery of the *L. icterohaemorrhagiae* from guinea-pigs inoculated with blood on the seventh day of the disease, and by the presence of a strongly positive sero-reaction with the typical "Weil" strain on the tenth day. Consequent inquiry by Hamilton Fairley,[9] under whose charge the case had been, showed, on clinical and serological examination of ten persons, that a hitherto unrecognized and endemic focus of Weil's disease had existed for twelve and a half years among sewer workers in London. Other reports of isolated cases or localized outbreaks have been communicated on the clinical features. In some cases spirochaetes were stated to be present in the urine, but bacteriological proof of their identity with *L. icterohaemorrhagiae* was not produced. For a full discussion of the relevant literature the reader is referred to the papers by Hindle[10] and by Taylor and Goyle.[11]

Present Investigation

Workers in rat-infested premises, both in this country and in Holland, have been recognized as specially liable to the disease. The association of leptospiral infection with water workers in Holland and wetness of the mines in East Lothian is admitted. The object of the present paper, however, is to describe a current outbreak of Weil's disease among persons employed in the handling and cleaning of fish, and to indicate the circumstances rendering them liable to infection. So far as the present authors are aware, the peculiar incidence of the disease in this industrial group has not been reported previously.

In June, 1934, two patients (Cases 3 and 5 in Table I), suffering from an acute febrile disease associated with jaundice and nephritis, were admitted to the wards in the Aberdeen Royal Infirmary under the charge of the professor of medicine. A diagnosis of Weil's disease was made on the clinical features. Inoculation of the blood and urine into guinea-pigs gave negative results. (An

* Since this paper was submitted to the *British Medical Journal* four more cases of proved Weil's disease in fish workers have been investigated, making a total of twenty-three.

explanation of these failures is discussed later.) Sera collected on the twenty-first and thirty-second days of the disease, respectively, were dispatched to Amsterdam, and Professor Schüffner, who generously agreed to test sera in these and other suspected cases, reported positive agglutination reactions in titres of 1 in 30,000 with the classical "Weil" strain. As both these patients were fish workers inquiries were instituted; these showed clearly that several additional cases had occurred in this occupational group over a period beginning in April of this year. Infective jaundice being a notifiable disease in Scotland since February, 1924, it was decided to request the medical officer of health to circularize the medical practitioners of Aberdeen and its regional area for information as to "any cases of infectious jaundice which they may at present have, or in the past have had, under their care," and to investigate the working conditions of the fish trade.

As a result of the better recognition of the clinical manifestations of Weil's disease, other than icterus, during the past decade in Holland the proportion of mild cases unassociated with jaundice has risen from 13 to 60 per cent. of the total.[3] Since information was requested from the Aberdeen practitioners about cases of infectious *jaundice*, we claim that a reliable index of the prevalence of leptospiral infection was not produced as a result of this inquiry.

We propose to divide the cases reported in this paper into two groups. Group I consists of a series of fifteen cases investigated between June and October, 1934, in which the diagnosis has been confirmed by bacteriological or serological methods. Points of particular interest in Group I are given in Table I. Group II comprises a series of four cases of great severity, diagnosed as Weil's disease from their clinical manifestations, but lacking bacteriological or serological confirmation. The value of serological tests is of recent establishment, and accordingly had not been undertaken in these cases.

Group I

In order to save space individual case histories are omitted, and the general picture of the disease as seen in these cases is presented and compared with the clinical features reported elsewhere. Of the fifteen cases in Table I, Cases 14 and 15 occurred in Edinburgh, the remaining thirteen in Aberdeen, and all have occurred during the present year. Twelve of the thirteen patients were connected with the fish trade. Eleven were employed in cleaning, filleting, curing, or packing fish, and one in the transport of fish from the yards to the railway station. Of the remaining cases one was a farm labourer working in fields and ditches, another was a labourer at the zoological gardens, while a third was a labourer engaged in laying water-mains. Seven out of the twelve cases in fish workers occurred in April, May, and June, and the remaining five in September and October. Males were affected in eight, females in seven instances. The ages varied from 14 to 67 years, ten being under 25. Juvenile and adolescent labour, however, is preponderant in the fishyards. The incubation period is stated to range between the limits of four and nineteen days, with an average of 10.3 days.[3] In view of the continuous exposure to sources of infection it was not possible to determine the incubation period in any of our cases.

Onset and Early Symptoms

The onset can be described as sudden in fourteen out of the fifteen cases, the illness developing acutely within twenty-four hours or less. All of these patients were confined to bed from the onset. Thirteen were admitted to hospital at periods varying from the second to the fourteenth day of the disease. Several of the following symptoms were present in the first four days of the illness: severe headache; weakness and marked prostration; muscular pains; shivering; anorexia, nausea, vomiting, and constipation; sore throat; abdominal pain; epistaxis and insomnia. Diarrhoea occurred at the onset in one case, and was followed by marked constipation. Meningeal symptoms with acute pain on moving the neck led in one case to suspicions of a cerebral condition. Abdominal tenderness was generalized or localized to the epigastrium, right hypochondrium, or right iliac region. The tongue was coated, moist in the early stages, and dry later. Muscular pains and a feeling of prostration were present in practically every case. Cases 9 and 10 were exceptional in this respect, although they had been diagnosed as influenza until the sero-reactions revealed their true nature. In the severe cases muscular pain was a very prominent symptom, affecting the back, loins, shoulder-girdle, neck, thighs, or calves, and lasting as long as seven days; acute tenderness of the muscles on pressure was associated. Joint pains were present in the most severe surviving case.

TABLE I

No.	Sex and Age	Occupation	Onset	Muscular Pains	Haemorrhages	Jaundice	Nephritis	Duration (Days)
1	Male, 17	Fish worker	Sudden	++	Haemoptysis; occult blood in stools	++	Albumin, casts	58
2	Female, 18	"	"	++	Epistaxis	+++ 70	Albumin, pus cells	77
3	Female, 16	"	"	++	Epistaxis. ? Haematemesis	++ 33	Albumin, casts, pus cells. 58	87
4	Male, 18	"	"	+	None	++ 50	Albumin, casts, pus cells	(16)
5	Male, 40	"	"	+++	Epistaxis; occult blood in stools	+++ 60	Albumin, casts, pus cells. 152	(57)
6	Female, 16	"	"	++	Epistaxis	None	Albumin, casts, pus cells, red blood cells. 52	(36)
7	Male, 22	"	"	++	Occult blood in stools	++ 35	Albumin, casts, pus cells, red blood cells. 143	(42)
8	Female, 14	"	"	++	? Haematemesis	++ 35	Albumin, casts, pus cells, red cells. 43	(43)
9	Female, 18	"	"	None	None	None	None	14
10	Female, 21		"	+	None	None	None	(25)
11	Female, 16	"	"	+	[None	+++ 60	Albumin	20+
12	Male, 63	Fish carter	"	Not noted	Epistaxis; petechiae	+++	Anuria	9
13	Male, 39	Labourer: pipe layer	Gradual	Not noted	Not noted	None	Albumin, casts, pus cells, red cells. 38	(56)
14	Male, 39	"Zoo" labourer	Sudden	Not noted	Not noted	+ 28	Albumin, casts, blood. 94	112
15	Male, 67	Farm labourer	"	++	Petechiae; haematemesis; melaena	+++ 52	Albumin, casts, blood	14

+ = Slight. ++ = Moderate. +++ = Severe. Figures in Columns 7 and 8 apply to icterus index in Murphy units and blood urea in mg. per 100 c.cm. respectively. Figures in Column 9 indicate total days of incapacity from work; where convalescent period is not included, figures are enclosed in parentheses. Death occurred in Cases 12 and 15; the remainder recovered.

Stress is laid by authors in the East Indies and Holland on the flushed conjunctivae (" red eyes ") due to dilatation of the episcleral capillaries. " Red eyes " was not noted in any of our cases, but its absence may be explained on the grounds that the patients were admitted to hospital on the average five days after the onset of acute symptoms. Herpes labialis was seen only in one case, and was not haemorrhagic. Haemorrhage from some situation was present in nine out of thirteen cases. Epistaxes were the most frequent, occurring in five instances. Nose-bleeding was slight in degree, occurred in the first four days, and was revealed only on direct inquiry. Severe haemorrhages of multiple origin are recorded in the two fatal cases of this group.

Fever was present in ten of the patients. Case 12 was collapsed, with a subnormal temperature, while Case 13 was admitted late in the disease. The temperature varied in its maximum height from 99° to 104° F., according as admission was late or early. The highest figures were recorded on the third, fourth, and fifth days. The duration of the primary fever was six to nine days. A secondary rise in temperature in six cases followed from four to eleven days after the termination of the primary fever, and lasted from five to twenty days ; a maximum figure exceeding 100° was reached in four of these. Splenic and glandular enlargement was absent in all cases, but there was liver enlargement in one. A red, measly rash was seen on the legs of one patient on the tenth day of the disease, and disappeared within two days. Jaundice was detected in eleven out of the fifteen cases, being first seen on the fourth to the tenth day ; in six of the cases it was present by the sixth day. Fluctuations in the jaundice were not observed. Save in two cases where jaundice persisted until the seventh week, icterus had disappeared by the third week.

Urinary Features

These seem to be worthy of emphasis. Albumin and casts were found in nine cases, albumin alone in three, and red blood cells in six. The urinary output was not markedly diminished, except in one fatal case with anuria. There was no associated puffiness of the face or other oedema. The association of jaundice and nephritis was found of great diagnostic value. Whether the azotaemia of Weil's disease is wholly dependent on impairment of renal function or in part at least on increased urea production is an undetermined problem.[12] Figures for blood urea values are available only in four cases before the tenth day of the disease (Cases 3, 5, 7, and 8). Raised values are present in these instances. Case 7 is of interest in that a urea content of 66 mg. per 100 c.cm. was recorded on the third day of the illness, later rising to the high level of 143 mg. per 100 c.cm. on the tenth day. These high degrees of nitrogen retention suggest that the association of a sudden onset, high fever, muscular pains, nephritis, and raised blood urea values in the absence of oedema or hypertension might be of considerable diagnostic service in the early stages of severe cases. A secondary rise in the blood urea content occurred during the period of secondary fever in two cases.

Course of the Disease

While the distressing subjective features of the onset, such as headache and muscular pains, disappeared within a week, and jaundice resolved on the average by the twenty-first day, the urinary findings took considerably longer to return to normal. Even in mild cases a trace of albumin was present six weeks after the onset, while in the severe cases albumin and casts in the centrifuged deposit were detected in the eighth week of the disease. In Cases 3 and 5 blood urea values fell to normal upper limits after six weeks. In six cases loss of hair, beginning in the third week of the disease, was marked, and led to a state of partial baldness. It has been impossible to estimate the total period of disability except by the duration of stay in hospital. Convalescence thereafter was prolonged, since many of the patients felt unable to work owing to general weakness and tiredness, and complained of vague muscular pains for several weeks after discharge from hospital. There were two fatal cases in this group, death occurring on the ninth and fourteenth days.

Group II

Group II consists of the series of four fatal cases reported on clinical grounds. They extend over a period from 1929 to 1934. The several occupations of the patients were restaurateur, farm worker, market gardener, and fish carter. Three were males and one a female, and their ages were 64, 34, 34, and 24 respectively. A typical history of one of these cases is as follows. The patient was suddenly taken ill with severe muscular pains followed by sickness, vomiting, and haemoptysis, succeeded by jaundice on the fourth day. On the sixth day he was admitted to hospital moribund, when the findings and subsequent course were: severe jaundice, albuminuria slight, hyaline granular and epithelial casts in urine, blood urea 349 mg. per 100 c.cm., gradually increasing jaundice, repeated haemorrhages ; finally, anuria, coma, and death on the ninth day. It is to be noted that one of the patients in these fatal cases was a fish carter. In another a history was obtained of fatal jaundice in two younger members of the family, aged 7 and 17 years respectively. Since the premises were rat-infested it was suspected that all three deaths had a common origin.

Bacteriological Investigations

It has been the experience of Dutch and other workers that *L. icterohaemorrhagiae* can best be recovered from human cases of infection by intraperitoneal inoculation of blood, urine, and tissue emulsions into young guinea-pigs rather than by direct cultural methods. In the present series blood samples from five cases and ten specimens of urine from six cases were inoculated into guinea-pigs, 1/2 to 1 c.cm. of blood and 5 c.cm. of urine being used. The results of these tests have, however, been vitiated by the fact that for the most part the cases were recognized a considerable period after the onset of the illness. To recover the organism from the blood it is necessary to obtain a specimen in the early stage of the disease—one to six days after the onset, while the patient is yet febrile. So with the urine the most favourable time for the demonstration of the organism is the period fourteen to twenty-one days after the onset. A most important point in connexion with the examination of urinary specimens is that guinea-pigs must be inoculated within one hour, otherwise the leptospira will have died off.

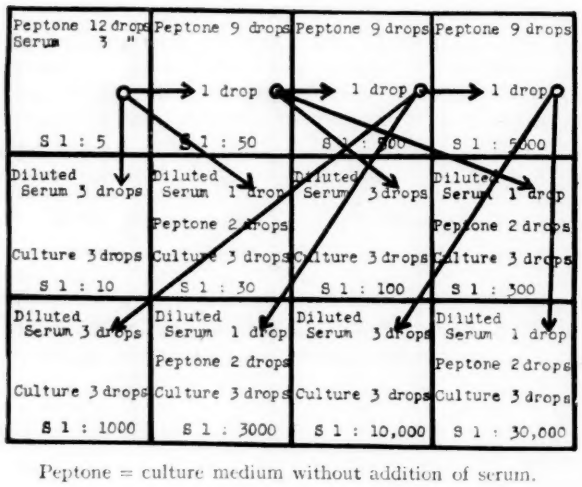
So far the organism has not been recovered from any blood specimens, but has been recovered from the urine of Case 8 and from emulsions of the tissues of one fatal case (12). The urine which contained the leptospira was obtained on the sixteenth day of the patient's illness, and a further specimen, obtained on the twenty-ninth day, failed to kill the guinea-pigs. It should also be pointed out that it is not necessary to wait for the death of the animals in order to obtain positive results. Two days after inoculation the febrile reaction in the infected guinea-pig begins, and if a small quantity of fluid is withdrawn from the peritoneum from day to day by puncturing the abdominal wall with a sharp-pointed glass pipette, sufficient material will be obtained for examination by dark-ground illumination methods. If the peritoneal fluid shows a positive result blood may be obtained by heart puncture and cultured, several drops being added to four or five tubes of medium.

Cultural Methods

The culture medium used by the Dutch workers consists of the following: tap-water, 1,500 c.cm.; Witte's peptone, 0.15 gram; Ringer's solution, 300 c.cm.; and Sorensen's solution *p*H 7.2. The final reaction of this peptone medium should be between *p*H 6.8 and *p*H 7.2. Three c.cm. of the medium is placed in a small tube and sterilized. For use 0.3 c.cm. of fresh rabbit serum is added; the tubes are then heated at 56° C. for thirty minutes and incubated at 37° C. overnight. Certain rabbit sera seem to be somewhat inimical to the growth of leptospira, and, furthermore, guinea-pig serum filtered through an L5 Chamberland candle can be employed with success. Samples of horse serum have given less favourable results than rabbit or guinea-pig sera. The patient's blood can be cultured in this medium, and so also the urine if obtained free from other organisms. A point of practical interest is that since the leptospira may remain alive for days in clotted blood from human cases, the blood clot can be broken up and inoculated into guinea-pigs. To culture the leptospira the tubes are placed in an incubator at 32° C. and examined after three or four to seven days.

Sero-reactions

It is obvious that since only some 40 per cent. of cases show signs of jaundice, and since many cases recover after a febrile illness lasting four to seven days, it would be difficult to diagnose the disease on a clinical basis. If, however, the occupation of the patient is kept in mind, some indication of the possibility of a leptospiral infection should present itself. Schüffner and Mochtar[13] showed that when the serum from human infections obtained after the seventh day of the illness was tested in various dilutions against an emulsion of living *L. icterohaemorrhagiae*, agglutination was obtained in the lower and lysis in the higher dilutions of the serum. This essential test is performed by setting up a series of dilutions of the serum in the cells of a sterile porcelain plate (painter's palette), or in small sterile test tubes 1 inch by half an inch. Figure 1 gives the details of Schüffner's method by which dilutions of the serum ranging from 1 in 5 to 1 in 15,000 can be obtained rapidly, and when three drops of the leptospiral emulsion (four days' growth at 32° C., and up to three days' growth at room temperature) are added to each the final serum dilutions range from 1 in 10 to 1 in 30,000. The serum dilutions are made with a sterile pipette. The tests are then incubated at 32° C. for three hours. The results are determined by examining a drop (obtained with a platinum loop from each dilution of the serum) under the microscope by the dark-ground illumination method. For this purpose a most suitable optical equipment has been found to be the Leitz "dry" dark-ground condenser D 0.80 in conjunction with the achromatic objectives 3 (2/3 inch) and 6L (1/6 inch), the source of illumination being a 100 c.p. pointolite lamp. A ×20 ocular can be used in conjunction with the 2/3 inch objective, and an ×8 to ×10 ocular with the 1/6 inch objective. A drop of the serum and living leptospiral emulsion is placed on a clean slide (0.9 mm. to 1.1 mm. in thickness, and examined first with the 2/3 inch objective and later with the 1/6 inch objective, no counterslip being interposed between the preparation and the objective.



Peptone = culture medium without addition of serum.

TABLE II

Case No.	Day after Onset of Illness on which Blood was Taken	Titre of Sero-reactions (aggn. and lysis) against:		
		L. icterohaemorrhagiae Weil	*L. canicola*	*L. icterohaemorrhagiae* Indian Strain
1	11th	1,000	300	30
2	6th	1,000	300	0
3	5th	30,000	1,000	300
4	6th	3,000	300	100
5	25th	30,000	300	100
6	29th	30,000	300	100
7	21st	10,000	300	100
8	9th	300	100	0
9	28th	3,000	100	30
10	8th	1,000	100	0
11	8th	1,000	0	0
12	8th	1,000	100	30
13	42nd	1,000	100	0
14	327th	300	0	0
15	10th	1,000	100	0

By these methods agglutination and lysis are observable with ease and rapidity. The results of the sero-reactions are given in Table II, the sera being tested against the three living strains as used by the Dutch workers. It will be observed that the end titres of the reactions against *L. icterohaemorrhagiae* Weil are extremely high, the agglutination of the leptospira occurring in dilutions ranging from 1 in 10 to 1 in 300 or 1 in 1,000, and lysis occurring from 1 in 300 to 1 in 30,000, a typical result being:

	Serum Dilutions:							
	1 in 10	1 in 30	1 in 100	1 in 300	1 in 1,000	1 in 3,000	1 in 10 000	1 in 30,000
Agglutination...	++++	++++	++++	++	–	–	–	–
Lysis				++	++++	++++	++	–

The reactions against *L. canicola* and *L. icterohaemorrhagiae* (Indian strain) are believed to be of the group type, *L. canicola* and *L. icterohaemorrhagiae* (Indian strain) being different serologically.[14] If, however, formalized killed cultures are employed, then agglutination only is observable, the lytic action being inhibited. In one case, a fatal one, the serum failed to give any reaction on the sixth day of the illness, but when obtained two days later reacted to a titre of 1 in 1,000. The agglutinating and lytic action of the serum can be employed for the diagnosis of a recent infection, or an infection which has occurred many years previously.

Source of Infections

The industry which has grown up around the preparation of fish for human consumption cannot be said to be conducted entirely on up-to-date, hygienic principles. The patients in the present series have been employed, for the most part, in the handling of white fish. The girls are engaged as filleters and cleaners, and the men in the general handling and distribution of the raw material and offal. In this city some 250 different establishments, each employing perhaps five to six girls and two to three men, are constantly at work. These small businesses account for about 60 per cent. of the total, the remaining 40 per cent. being in the hands of larger firms, employing forty to 100 or more workers.

At the outset it may be said that for economic reasons the smaller businesses are less able to employ hygienic methods than the larger concerns, though this does not always follow. A visit to many of these establishments shows that the premises and equipment are often unsatisfactory. The fish are taken from the market in boxes; they are dumped in a corrugated iron shed in which at a wooden table five or six girls proceed to fillet and prepare the fish for sale to the retailer. The water for washing is obtained from the municipal supply, which is entirely satisfactory, but often, instead of being withdrawn from the tap, it is drawn from a tub placed underneath the tap. The latter source, the table, and the floor all rapidly become covered with slime and offal. In the evening the bulk of the dirt and offal is collected into barrels, which are not removed until the following morning. As the premises are often rudely constructed there is little protection against rats, which infest the whole area in which the business is conducted.

Some years ago one of us showed[15] that 24 per cent. of rats, young and old, in the city harboured *L. icterohaemorrhagiae*. Recently, in July, 1934, when the disease was recognized, a visit was paid to some of the premises where the patients had been working. Six samples of water were obtained—four from floor washings and two from the tubs. To demonstrate the leptospira the technique of Applemann[16] was employed. Young guinea-pigs were chosen, and the hair was depilated from the abdominal skin. The water samples to be examined were placed in buckets to a depth of two inches or so, and brought to a temperature of 32° C. The abdominal skin of the guinea-pig was then scarified, and two animals were placed in each bucket and allowed to remain there for one hour. The animals were then removed and replaced in their cages. In two instances guinea-pigs died on the tenth and eleventh day respectively after immersion in the water. Both animals showed the typical features of infection due to *L. icterohaemorrhagiae*, the organism being easily demonstrable by microscopical examination in preparations from the liver, and the disease was repeatedly reproduced in other animals by inoculation with liver emulsions.

More recently (October) six more samples have been similarly examined, with one positive result. The sample of water that produced this was obtained from the floor of the premises in which two cases of Weil's disease had occurred during the past summer. Probably the incidence and prevalence of *L. icterohaemorrhagiae* may be to some extent seasonal. Obviously, therefore, the opportunities for infection and the conditions for the survival and perhaps multiplication of *L. icterohaemorrhagiae* after being deposited by the rats are present. Persons employed in the trade have the skin on their hands frequently broken by their knives, and presumably infection occurs through the exposed flesh surfaces, or it may occur, as in Holland, by infection through the nasal mucosa and upper respiratory tract.

Discussion

In a subsequent paper it is proposed to deal with certain aspects concerning the aetiology, prevention, and treatment of Weil's disease. A short discussion regarding the importance of early diagnosis appears, however, to be desirable. Favourable results have been reported following the administration of specific antiserum in the early stages of the disease, and also in cases with commencing icterus. The best results, however, are obtained when serum is given within the first three days of the onset. Since jaundice does not appear regularly before the fifth day the clinical diagnosis depends on the recognition of such symptoms as abrupt febrile onset, muscular pain, "red eyes," and marked prostration. None of these symptoms, however, can be held to be specific for Weil's disease, since they may occur in many acute infections. This is particularly true of influenza and acute tonsillitis. A mistaken diagnosis of influenza had been made in several of our cases, and in none of the patients in Group I was Weil's disease suspected prior to our investigation. While it is true that the occurrence of a sudden acute fever in a sewer worker might suggest the possibility of leptospirosis, even in the pre-icteric stage, the problem is entirely different in workers connected with fish-curing and cleaning. For every case of Weil's disease occurring among the thousands of fish workers in Aberdeen there must be hundreds of cases of acute febrile illness of other origin with symptoms similar to those mentioned above. Weil's disease in the early stages might be suspected on the following additional grounds: a leucocytosis with a shift to the left in the polymorph series, latent icterus with a direct or biphasic van den Bergh reaction, acute nephritis unassociated with oedema or hypertension but indicated by slight albuminuria, the presence of granular and cell casts in the urine, and a raised urea or non-protein-nitrogen content in the blood. The tests required to obtain the above data, as well as guinea-pig inoculation with blood, would be impossible in view of the numbers concerned; hence it appears to us that the clinical diagnosis in the early stage, before jaundice occurs, presents almost insuperable difficulties to the practitioner in Aberdeen. Accordingly the full benefits of specific serum treatment are unlikely to be realized.

In view of the practical difficulties connected with guinea-pig inoculation of blood and urine, the sero-reaction will remain the chief method by which the diagnosis will finally be confirmed. Since a positive sero-reaction does not occur before the seventh day of the disease the information obtained is of little value in regard to treatment. It is reassuring to know that Professor Schüffner's investigations indicate that this reaction in Weil's disease is as specific as the Widal reaction in enteric fever. Our own experience is in keeping with this, since sera from 180 cases other than those of Weil's disease have been examined, and in no instance has the reaction been obtained even in a dilution of 1 in 10.

Conclusions

1. Nineteen cases of Weil's disease are reported, in fifteen of which the clinical diagnosis was confirmed by bacteriological or serological tests.

2. Thirteen of the patients were employed in the handling and cleaning of fish.

3. These findings show for the first time that workers among fish must be included in the occupational groups especially liable to Weil's disease.

It is necessary for us to express our indebtedness to Professor W. Schüffner, director of the Tropical Disease Department of the Royal Dutch Colonial Institute at Amsterdam, for assistance in the serological diagnosis of the first cases, and for his

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AN ACCOUNT OF WEIL'S DISEASE IN QUEENSLAND

BY

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On July 7th, 1934, reference was made in the *Journal* (pp. 10 and 14) to the occurrence of Weil's disease in England. The arrival of that issue of the *Journal* in Brisbane coincided with an outbreak of the disease in Queensland. It is considered that a short review of the occurrence might be of value.

In February of this year the medical officer of health for the shire of Hinchinbrook (Dr. G. C. Morrissey) reported to the Department that during the past six months about thirty patients came under his notice displaying symptoms of a disease new to the district. The centre of this district is Ingham, a small town in one of the sugar-cane areas, situated in lat. 18° 8′ S., a few miles from the coast, with an annual average rainfall of over sixty inches. The population is predominantly Italian.

Symptoms

The symptoms noted were as follows. The illness began as in influenza, with "shivers," frontal or temporal headache, generalized pains, and prostration, which was marked during the acute period and for a considerable time during convalescence. An early sign was the deep congestion of the conjunctivae. The symptoms varied in intensity. Some patients developed herpes of the lips, frequently haemorrhagic in character. Over 50 per cent. complained of upper abdominal pain of variable severity; the pulse was slow, but quickened as heart failure supervened. The temperature, initially of the febrile type, fell in a few days (six days) to normal, and in severe cases jaundice then appeared, with epistaxis and petechial haemorrhages.

The prostration became very pronounced, the spleen was enlarged and tender, and the urine was scanty and contained blood. The tongue became brown, almost black, and dry. Vomiting of black vomitus tended to be persistent. In two cases there were terminal convulsions of moderate severity, preceded by delirium. One interesting feature of aetiological value was that most of the patients had enlarged axillary glands, and the hands showed evidence of old cuts and septic abrasions caused by the patient's occupation. The inguinal glands were enlarged also, but not so markedly as the former. During the occurrence of these cases the district had been experiencing exceptionally heavy and continuous rain.

Shortly after receiving this report the disease waned, but the shire council was instructed to set in motion an intensive campaign of rat destruction, as the district was heavily infested with these rodents. The Commonwealth Health Laboratory at Townsville was asked to assist by the examination of rats with the object of isolating the causative organism. The disease continued to be non-evident until the beginning of July, when it broke out again with renewed intensity. Up to the period of writing, when a further lull is in evidence, there have been 136 cases with seven deaths, and of the former a very large percentage of the patients were so seriously ill that recovery appeared doubtful. The treatment in all cases was purely symptomatic.

With the recrudescence of the disease Dr. T. J. Cotter of the Townsville Commonwealth Health Laboratory proceeded to Ingham, where he inoculated guinea-pigs direct with blood and urine taken from two patients, in accordance with the methods used by Fletcher of Malaya. Urine and emulsions of faeces from rats were also directly inoculated, but in all the results were negative.

Post-mortem Findings

Post-mortem findings reported by Dr. Cotter in one case were as follows:

"Well-developed muscular male, with marked icterus and generalized scattered skin petechiae. The liver was moderately enlarged, smooth, and congested, and finely streaked with bile. The gall-bladder was distended, with thickened walls, and contained thick dark green bile. The mucous membrane of the cystic duct appeared to be swollen. The spleen was enlarged, being about two and a half times the normal size. It was deep red in colour and very friable, tearing on removal; there was haemorrhage into the pulp. Renal system: a horse-shoe kidney was found with lower ends united across the vertebral column, the union consisting of kidney tissue, with ureters passing anteriorly. The kidney was swollen, soft, and engorged, with scattered subscapular haemorrhages. The surface was smooth, and the capsule peeled off easily. The cortex was congested, and occasional haemorrhages were present. The pelvis and calices showed petechial haemorrhages on the mucous membrane. The heart was not dilated, and showed nothing abnormal macroscopically. There was hypostatic congestion of the bases of the lung. The bowel appeared normal."

Later, a post-mortem examination of an infected guinea-pig showed multiple small haemorrhages in all the viscera, with "butterfly" patches in the lungs.

At this time, further north, a large number of cases of "coastal fever" were occurring. This is an indeterminate fever, the cause of which is unknown, but which is probably due to a virus of the Rickettsia type conveyed in the bite of an insect. As the *L. icterohaemorrhagiae* had not been isolated in the cases at Ingham the occurrence of these cases of "coastal fever" tended to complicate the position, which became more pronounced as all the laboratory tests proved to be negative (Widal against Rawlings and Cairns strains, Weil-Felix reaction, blood examination for malarial parasites, and agglutination tests for *Br. abortus*). In addition, influenza was also present, further complicating the outbreak.

Preventive Measures Adopted

Notwithstanding these results, Drs. Morrissey and Leckie of Ingham stood to their diagnosis of Weil's disease, and the following measures, from the public health point of view, were advised: (1) an immediate supply of anti-serum to be obtained by quickest route from abroad; (2) protective measures for cane-cutters—frequent disinfection of hands and feet in biniodide solution and the wearing of footwear (it is the custom among these men to work bare-footed in the cane-fields); (3) investigation of water supplies, which in the main are drawn from shallow wells; (4) closer sanitary inspection of quarters, etc.; (5) conference of various bodies interested to intensify the rat destruction campaign; (6) a research worker to be maintained in the fields.

Dr. Sawers of the School of Public Health and Tropical Medicine, Sydney, was then sent north. On August 15th Dr. Cotter was successful in isolating the *L. icterohaemorrhagiae*, thus confirming Dr. Morrissey's clinical diagnosis. Dr. Sawers corroborated this finding, and later isolated the leptospira from urine taken from rats in the Ingham district. Subsequent examinations have shown that a very high percentage of the rats are so infected there.

As the position at Ingham was fast approaching that of an industrial crisis, owing to the dread of the disease, the Commissioner of Public Health (Dr. J. Coffey) proceeded to the district to advise on preventive measures, which were embodied in the following pamphlet:

1. Avoid eating food in the fields unless the hands are thoroughly cleansed previously.
2. Avoid drinking water in the fields unless it has been boiled.
3. Avoid rolling and smoking cigarettes in the field.
4. Avoid using water lying in the field for washing hands or face; such water is liable to be infected.
5. Avoid walking through or in wet places.
6. Feet should be protected by wearing boots.
7. All cuts and abrasions should be washed immediately in a perchloride of mercury solution, one tablet to one pint of clear water.
8. All cuts and abrasions, after the above preliminary treatment, should be covered with adhesive plaster or other suitable covering.
9. All food in the barracks and elsewhere must always be protected from rats.

Remarks

From a close analysis of the situation it would appear that the disease has been introduced into the district from over-seas, as Dr. Morrissey, who has been at Ingham for twelve years, is positive that he had never seen a case in the district until October, 1933. As Weil's disease was very prevalent in Italy during the war, and as the population of Ingham in the main is Italian, the theory that the disease has been conveyed by human carrier is highly probable; less likely is the theory that it may have been introduced direct by infected rats of foreign origin.

By plotting on a map of the district the places where the cases originated there is demonstrated a distinct tendency for infection to occur in farms in low-lying areas along the course of streams which have been shown also to be heavily infested with rats. The probable association of the disease with the rainfall is also interesting, since cases generally occur about ten days after rain. The cane-cutters work in all weathers, and it would appear that the moist conditions existing in the fields after rain have a benign influence on the life of the leptospira. After a prolonged spell of dry weather, on the other hand, the outbreak ceases. It may be, too, that the germ is left on the cane itself by infected rats, which destroy cane to about the extent of 10 per cent. In grasping the cane preparatory to cutting, the hands become injured with abrasions, and it is possible that the leptospirae gain direct entry into the system in this manner, as witness the enlarged axillary glands in the cane-cutters suffering from the disease.

Firing the cane has been recommended as a temporary measure. By this action the cane and upper surface of the soil are sterilized, and the lower leaves, which are the principal cause of injury to the cutters' arms, are removed. Unfortunately, this action is rendered impossible during the most dangerous period, as the cane is too damp. The main problem which will tax the resources of the State, however, will be to eradicate the rat down to the irreducible minimum.

In the compilation of this review I am indebted to Dr. John Coffey, Commissioner of Public Health; Dr. F. McCallum, Chief Quarantine Officer (General); Dr. T. J. Cotter; Dr. W. Sawers of the Commonwealth Health Service; and Drs. Morrissey, Leckie, and Piscitelli of Ingham.

MODERN SANATORIUM TREATMENT*

BY

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Treatments, like diseases, come and go. So strange, indeed, is custom in this respect that the elderly practitioner sometimes rubs his eyes in astonishment on finding that his old-fashioned therapy has come round again as the newest popular form of treatment. Many forms of treatment suffer from misapplication. For a time they are discarded in favour of some newer method, instead of inquiry being made as to the reasons for their apparent failure, and as to whether their rational application cannot be utilized to embrace the new departure.

There is a tendency now among some to disparage sanatorium treatment and to regard collapse therapy as the only form of treatment of pulmonary tuberculosis. It is true that artificial pneumothorax, together with other surgical measures such as phrenic evulsion and thoracoplasty, has revolutionized the treatment of chronic pulmonary tuberculosis within the last decade. This holds especially for the intermediate case and the case which has proceeded to cavity formation. Formerly, in many instances, treatment of these types could only be palliative, and was often disheartening. It is now active, and frequently successful. But this success in selected cases does not imply, as some Continental authorities urge, that in all cases of chronic pulmonary tuberculosis an artificial pneumothorax should be induced and surgical methods employed if pneumothorax is impossible. Such an attitude ignores not only the tried and proved methods of sanatorium treatment, but fails to take cognizance of the many cases of pulmonary tuberculosis in which artificial pneumothorax is contraindicated. To this important question Dr. F. Heaf has recently drawn attention.[1]

The term "sanatorium treatment" is a loose one and has been applied to the treatment in a residential institution of all forms of pulmonary tuberculosis. Unfortunately, sanatorium treatment in the true sense has been adversely affected by this lack of clear definition. To the modern physician dealing with tuberculosis the words have a special and limited meaning: they apply to institutional treatment given to a tuberculous patient who is ambulant and afebrile—that is to say, the sanatorium patient is a selected case. Lack of appreciation of this fact has led

* Read in the Section of Public Health at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

to sanatoria being filled with unsuitable patients who were by no means fitted to undergo ambulant treatment. The unfavourable results given by these patients have cast reflections upon sanatorium treatment. Yet it was not the sanatorium system which was faulty, but its method of use. Furthermore, an appreciable proportion of these unfavourable cases by prior treatment might have been rendered suitable for sanatorium treatment.

Classification and Selection of Patients

The residential institutions in a tuberculosis scheme for the treatment of the consumptive comprise: (*a*) the hospital with observation wards; (*b*) the sanatorium; (*c*) the hospital or home for advanced cases.

The best form of institution is a combined one—the hospital sanatorium—which includes an observation block, a nursing or hospital block, and sanatorium pavilions. A certain preliminary selection of patients for institutional treatment is done by the tuberculosis officer in consultation with the patient's medical attendant.

From clinical examination and experience the tuberculosis officer will mark certain patients as in need of hospital treatment, others as suitable for sanatorium treatment forthwith.

But in practically every case it is desirable that the patient should be admitted to the observation ward and put to bed for a fortnight or so. During this time he will be under intensive observation by the resident medical officer. His temperature can be charted at four-hourly intervals; the influence of rest upon it can be studied; the sputum can be examined bacteriologically and measured; the pulse rate can be charted; the psychology of the patient can be taken into account; he can be *x*-rayed, and so forth. If his temperature while he is in bed remains normal the effect upon it of getting him up or of gentle exercise can be tested.

At the end of the period of observation a decision can be made as to the form of treatment which is applicable to the present needs of the individual patient. The ambulant afebrile patient may be transferred to the sanatorium section. Other patients may be regarded as likely to obtain arrest of their disease and to be suitable for sanatorium treatment after an initial course of hospital treatment; another group of patients will be selected for artificial pneumothorax, phrenic evulsion, or some other form of operative treatment. Such treatment is preferably given in the hospital or surgical block of the institution, after which the patient may be found eligible for transference to the sanatorium section. A fourth group will include those patients obviously needing hospital treatment, but in which doubt is felt as to whether they will ever attain that degree of quiescence of their disease which will make them fit subjects for sanatorium treatment.

Finally, there are the advanced febrile cases in which the disease has progressed so far that only palliative treatment is indicated. When the home conditions are good and provision can be made for isolation a certain number of these patients may be advised or permitted to take their discharge, but the majority require hospital treatment either in the hospital block of the combined institution or in a special hospital or home for advanced cases. This treatment is not only in the interests of the individual patient who thus has his last days of life made comfortable by medical and nursing care, but inasmuch as he is likely to be a source of massive infection the segregation of this patient from his family is a valuable measure from the public health standpoint.

Hospital Treatment

In hospital treatment the criterion of temperature is all-important. Bearing this in mind, it follows that as a result of institutional observation the greater proportion of patients will require a period of hospital treatment, for the early afebrile case of pulmonary tuberculosis is comparatively rare. In most early cases the disease begins with fever, and fever is also indicative of active disease in intermediate and later stages. The chief feature of the treatment in hospital is rest in bed, which should be absolute not only in name but in practice. Incidentally, the value of absolute vocal rest for patients suffering from tuberculous laryngitis cannot be overemphasized.

In a favourable case, after the temperature curve under the influence of absolute rest remains normal and the pulse rate is steady, neither being disturbed by the patient being allowed up all day; when, concurrently, the physical signs in the chest are inactive and non-progressive and the general nutrition and physique are good, the patient is fit to be transferred to the sanatorium. But if after a month or six weeks' hospital treatment the physician finds that his patient continues febrile he must consider future treatment in relation, as always, to the individual case. For example:

(*a*) In a unilateral case or one chiefly unilateral he will consider the advisability of artificial pneumothorax or some other form of collapse therapy.

(*b*) In others he may wish to try the effect of sanocrysin or some other form of gold-salt therapy.

(*c*) Another case may present features of regression. The temperature is hectic, or, more ominous still, of the inverse type, being higher in the morning than in the evening. The physical signs are bilateral and are advancing. The sputum is copious, and emaciation and prostration are marked. One can only hope here to relieve the patient by attention to special symptoms, and the strict regime of absolute rest can be relaxed.

(*d*) Other febrile patients the physician may consider as unsuitable for collapse therapy, but inasmuch as they show general improvement as regards nutrition and the spread of disease he may advise longer treatment under absolute rest.

(*e*) Then there are certain chronic cases of pulmonary tuberculosis which respond to hospital treatment, but are obviously unsuitable for strict sanatorium treatment. Under this category may be grouped certain of the tuberculous asthmatics, the emphysematous, those with tuberculous laryngitis in a certain proportion of cases, those prone to complications, such as pleurisy, bronchial catarrh, bronchitis, and gastro-intestinal disorders.

A proportion of cases of this kind may live for years with tubercle bacilli in their sputum. From time to time their resisting power breaks down, and they require institutional treatment or are ordered rest at home in bed under appropriate conditions; they become afebrile, and with due precautions may resume an active life, but clinical experience teaches one that under any undue strain or climatic exposure, or intercurrent infection—for example, influenza—the chronic disease is liable to exacerbate. Such patients need medical supervision throughout the course of their lives, but they only require, as a rule, limited periods of hospital treatment.

Sanatorium Treatment

It will be seen from what has been said that the average tuberculous patient only qualifies for sanatorium treatment after a period of observation followed by hospital treatment. The early ambulant afebrile patient who is found on observation immediately suitable for the sanatorium is the exception and not the rule.

It is not intended in this paper to discuss the details of sanatorium treatment. Its essentials are that the patient should reside in a healthy situation, where he can obtain plenty of fresh air, be under close medical supervision, and adhere to a specified regime of life, including an adequate but not excessive diet. Graduated exercise and some form of occupational therapy are an integral part of the treatment. The rate at which the exercise is in-

creased and the hours of work are extended depends upon the progress of the lesion, and the patient's disposition, weight, and appetite. The utmost care must be taken in controlling graded exercises and work. If the patient's temperature rises to 99° F. or over he should be kept in bed on "absolute rest" until his temperature is persistently normal. For a limited period the patient may rest in the sanatorium ward, but whenever his temperature remains febrile for more than a few days he must no longer be regarded as a sanatorium patient. He needs transference to the hospital or nursing block of the sanatorium to undergo treatment by "absolute rest," after which, under favourable circumstances, he may re-enter the sanatorium. This alternation between hospital and sanatorium treatment is in great part the secret of successful institutional treatment of pulmonary tuberculosis. It is best done in the combined hospital-sanatorium.

As to the duration of sanatorium treatment, this depends upon the response of the individual. Some patients require longer, others shorter periods. If possible the patient should be retained in the sanatorium until his disease is quiescent and he is in a fit condition to resume an occupation. In patients falling short of this standard their sanatorium residence should have educated them in a way of life which may enable them in the future to obtain quiescence or to prolong their days.

Conclusion

An attempt has been made in this paper to indicate the principles of modern sanatorium treatment, including the selection of patients for such treatment. In brief these principles comprise:

1. The diagnosis of pulmonary tuberculosis at the early stage.
2. A proper selection of patients for sanatorium treatment.
3. Full co-ordination between the tuberculosis officer and the medical superintendent of the sanatorium.
4. Observation and hospital treatment, including collapse therapy.
5. Correct co-ordination of hospital and sanatorium treatment.
6. Study and treatment of the individual patient by the medical superintendent of the sanatorium.
7. A proper sanatorium regime.
8. Prolonged duration of stay in the sanatorium.

To these principles should be added the maintenance of the ex-sanatorium patient in whom the disease has become quiescent under medical supervision for at least five years, the injunction to seek medical advice at the first symptom of renewed ill-health, residence in a village settlement, or, if this is impracticable, suitable after-care provision by the local authority.

The sanatoria of the more progressive authorities in this country obtain favourable results by the practice of these principles. If they were generally practised throughout the country we should hear less about the failure of sanatorium treatment.

REFERENCE

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An international post-graduate course on diseases of infants and children, with special reference to their treatment, will be held in Vienna from February 11th to 24th. A prominent feature of this course will be the clinical demonstrations and the exhibition of radiological, electro-cardiographical, and other apparatus used in diagnosis and special therapy. The fee is 50 Austrian schillings, and further information is obtainable from the secretary of these international classes, Dr. A. Kronfeld, Porzellangasse 22, Vienna IX.

SEPTICAEMIA FOLLOWING TONSILLECTOMY

A RECORD OF CASES

BY

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In recent years there have been at least two interesting papers[1] [2] showing the result of investigation into the post-operative complications following the removal of tonsils and adenoids. Clinical notes of a series of cases may therefore not be out of place.

This article makes no attempt to deal with the statistical aspect, but merely records a number of cases that resulted in certain serious sequelae. They occurred at a time when children undergoing this operation were kept in hospital for twenty-four hours. The patients were admitted on the morning of operation and discharged the following day. The total mortality during these years was 0.7 per cent. All the cases reported were operated upon by, or under the direct supervision of, the surgeons in charge of the ear, nose, and throat departments, and no patient was discharged under twenty-four hours after removal of the tonsils. All were examined immediately prior to operation by the house-surgeon.

Eleven cases of severe illness, with seven deaths, are herein recorded, all of which can be directly attributed to the operation. Streptococcal blood infection would appear to be the principal cause of the illness. In seven of the cases a streptococcal blood infection was proved by the presence of the organism either in the blood or in the pus from pyaemic abscesses, while in Cases 8, 9, 10, and 11, the probability of a streptococcal septicaemia is strong.

Although among a large number of operations the incidence of serious complications may be considered small, yet the occurrence of such accidents in connexion with what is looked upon as a minor operation is disquieting, and calls for a critical survey of method and management. Following on this unfortunate experience it is impossible to resist the obvious implications and deductions. It is significant that patients operated upon in private practice, either in their own homes or in nursing homes, seldom develop severe complications. Many of the hospital patients come from poor, overcrowded, and unhealthy environments. Their physical condition cannot therefore be considered satisfactory to undergo an operation, and their homes are certainly not suitable for their after-care. Whenever possible such cases should be taken into hospital or sent to a convalescent home for a few days prior to the operation.

As there can be little doubt that the chief source of danger is the presence of a virulent strain of streptococci in the upper respiratory passages or tonsils, it is a self-evident precaution to avoid operating upon those who have recently had, or been in contact with, infections of this nature. In this connexion it is as well to remember that the surgeon or the staff assisting him may be the source of infection, and that anyone in the throes of "a cold" should be excluded from taking part in the operation.

Since these cases occurred the period of detention in hospital has been increased to three days during the summer months and five during the winter months; complications have been greatly reduced and the mortality practically wiped out. Considerations of hospital finance and the length of the waiting list should not be entertained at the expense of the safety of the operation.

It is difficult, when one realizes the vast number of patients referred for operation, to resist a sense of doubt

as to its necessity or even advisability in all cases. The beneficial results following the removal of tonsils and adenoids in selected cases are undoubtedly most striking, but operation is to be advised with deliberation after careful and, if necessary, repeated examination.

Case Records

Case 1.—A male, aged 8 years, had tonsils and adenoids removed, guillotine method, on March 4th, 1932. The temperature, which on March 5th was 99.8°, rose gradually to a maximum of 104.4° on March 13th. The throat was fairly clean; there were a few enlarged and tender cervical glands. On March 11th painful (Osler's) node was noted on right wrist, and on the same day a blood culture grew streptococci. Painful nodes were noted on the right foot and left upper arm on March 12th, similar nodes developing subsequently during the next day on the left hand and right knee. On March 14th there was fluid effusion into the left knee-joint, which cleared up without surgical measures. Three days later a fluctuating swelling appeared on the fourth finger of the left hand, and pus aspirated from this contained streptococci. The temperature then gradually settled, although it was never normal, until a sharp rise occurred on March 24th, which continued until March 27th, when a large abscess in the deep tissues below the left scapula was aspirated; this also contained streptococci. Gradual improvement followed, until the patient was discharged to a convalescent home. Anti-streptococcal (anti-scarlet) serum was administered daily throughout the illness, and blood transfusion was performed when it was at its height.

A case of streptococcal septicaemia with pyaemic abscesses, and recovery.

Case 2.—A female, aged 4 years, had tonsils and adenoids removed, guillotine method, on March 9th, 1932. The temperature was 100.4° on March 10th, reaching 102.4° on the third day, and remaining up until death took place, one week after operation. There was consolidation at the base of the right lung with generalized bronchitis. Blood culture grew streptococci.

A case of streptococcal septicaemia with bronchopneumonia and rapidly fatal termination.

Case 3.—A female, aged 7½ years, whose tonsils and adenoids were removed, guillotine method, on July 1st, 1931, was detained in hospital for six days owing to slight pyrexia. She remained well for one week after discharge, but was put to bed at home on account of lassitude and feverishness. A slight swelling of the left knee was noticed on July 22nd, which gradually increased, the child becoming extremely ill. On August 8th she was readmitted, looking very pale, with tonsillar fossae clean, and temperature 105.2°. The left knee was swollen, tender, and flexed at 90°, and on exploration contained turbid fluid, from which streptococci were isolated in pure culture. On August 12th the right hip-joint was extremely painful, and on aspiration turbid fluid was obtained which contained streptococci. The temperature continued to range from 100° to 103° until death, on August 14th. Blood culture was not carried out.

A case of streptococcal septicaemia with pyaemic abscesses, and death.

Case 4.—In this case, that of a female aged 26 years, the tonsils and adenoids were removed by dissection method on October 16th, 1931. She was discharged on October 19th and remained well until October 23rd, when she complained of severe pain in the left ear, accompanied by fever of 105°. Owing to persistence of pain in the ear and pyrexia, the left mastoid was opened; no pus was found, and the lateral sinus was healthy. On October 27th right pleural effusion developed, blood-stained fluid being withdrawn on exploration, which on culture grew streptococci. Blood culture was sterile (one only). The pyrexia continued, and on November 26th thrombophlebitis of right femoral vein occurred. By the end of December the fever had subsided, and the signs of fluid in the right chest had disappeared. The patient was discharged well, except for slight oedema of the right foot.

A case of streptococcal septicaemia, streptococcal pleural effusion, with recovery.

Case 5.—A male, aged 5 years, whose tonsils and adenoids were removed, guillotine method, on September 16th, 1931, was discharged from hospital the following day apparently well. He was readmitted six days afterwards with a history of severe abdominal pain, vomiting, and diarrhoea for three days. On admission he was very ill, with sunken eyes and alae nasi working. The temperature was 102°, pulse rate 152, and respirations 32. The throat was clean, except for a slough still present on the right tonsil. There was generalized tenderness and rigidity over the abdomen, the signs being especially marked in the left iliac fossa. There was pneumonic consolidation over the lower lobes of both right and left lungs. It was decided that the abdominal signs were probably due to the pneumonia, but on the following day, the abdominal tenderness and rigidity persisting, laparotomy was performed under gas and oxygen anaesthesia, serous fluid with flaky pus escaping. This fluid contained streptococci on culture; blood culture was sterile. The child died two days after operation.

A case of streptococcal septicaemia, with bronchopneumonia, streptococcal peritonitis, and death.

Case 6.—A male, aged 9 years, had tonsils and adenoids removed, guillotine method, on August 8th, 1931. On the following day the child had a temperature of 100°, and was therefore detained in hospital. On the second day after operation the temperature was 102°, pulse rate 140, and respirations 22. The throat was satisfactory, and a few rhonchi were present in the lungs. The child was acutely ill and drowsy. The temperature ranged from 100° to 104° until the fourth day after operation, when it gradually subsided. A blood culture grew a few feeble colonies of streptococci.

A case of streptococcal septicaemia, with recovery.

Case 7.—A female, aged 3 years, was admitted to hospital for an indefinite febrile condition, supposed to be due to a recent tonsillitis. Ten days after admission, on June 8th, 1932, tonsils and adenoids were removed, guillotine method. Twelve hours after operation the temperature rose to 100.4°, and so continued. On June 12th there was pain with redness and swelling just below the left knee, maximum tenderness being over the head of the fibula. When the left fibula was explored on June 14th about 5 c.cm. of pus was evacuated; this contained streptococci. Blood culture was negative. The child made an uneventful recovery.

A case of streptococcal septicaemia, with streptococcal osteomyelitis of fibula.

Case 8.—The tonsils and adenoids of a female, aged 2 years and 9 months, were removed, guillotine method, on February 15th, 1932, on account of persistent nasal discharge. On February 19th the child was discharged from hospital apparently well. She was readmitted on February 24th with a temperature of 104°, pulse rate 148, and looking extremely ill and pale. No abnormal physical signs, except some post-nasal discharge and enlarged cervical glands, could be found. In spite of a blood transfusion the child died on the day following admission. Unfortunately, a blood culture was not attempted, but the clinical picture and progress of the case is highly suggestive of a septicaemia, probably streptococcal.

Case 9.—The tonsils and adenoids of a male, aged 2 years, were removed for unilateral nasal discharge, guillotine method, on May 15th, 1931. The child was discharged from hospital after twenty-four hours apparently well. Two days after operation he developed cough and dyspnoea, and became increasingly ill. He was readmitted to hospital the next day, with a temperature of 99.4°, pulse rate 160, and respirations 56; there was extreme cyanosis, and coarse rales could be heard all over both lungs. Death took place five hours after admission.

The signs in this child were suggestive of an acute streptococcal bronchopneumonia. However, the possibility of inhalation pneumonia cannot be denied, although I have not met with such in my experience of a very large number of tonsillectomies in children. Unfortunately, no post-mortem was obtained.

Case 10.—A male, aged 5 years, had tonsils and adenoids removed, guillotine method, on January 23rd, 1931. He was discharged from hospital after twenty-four hours apparently

well. Three days after operation there was a sudden onset of severe vomiting and diarrhoea. The child's condition rapidly became worse, and unconsciousness supervened the following day. On readmission (five days after operation) the temperature was 103°, pulse rate 160, and respirations 32. The patient was very drowsy, but could be roused ; his colour was good. There were scattered rhonchi throughout both lungs, a patch of tubular breathing, and crepitations at left base. The temperature remained at 103° to 104° ; delirium and unconsciousness supervened, death taking place two days after admission—that is, one week after tonsillectomy. No blood culture or post-mortem was performed, but the clinical picture was one of septicaemia.

Case 11.—A female, aged 9 years, had tonsils and adenoids removed, guillotine method, on October 7th, 1931. She was discharged from hospital after twenty-four hours apparently well. On arrival home she was seen by the family doctor, who found her not at all well, with a temperature of 101°. The child continued very ill ; the throat was dirty, and the temperature ranged from 101° to 103°. On October 10th there was severe epistaxis. The following day the patient was still very ill ; her expression was anxious, and her breath very offensive. There was sordes on the lips and teeth, and the throat was very dirty and sloughy. The cervical glands were enlarged and tender, and blood oozed from the nasopharynx. She was admitted to a nursing home, when the temperature was 102°, pulse rate 144, and respirations 28. A throat swab showed the presence of streptococci and staphylococci. In the morning of October 12th the patient's condition slightly improved, but in the evening there was another severe epistaxis, and she became semi-conscious. A post-nasal plug was introduced to control haemorrhage, and anti-streptococcal serum was given. The child died that evening. No blood culture was obtained.

Although the post-nasal haemorrhage was probably contributory, the fatal result in this case, in view of the high pyrexia and general picture, was considered to be due to septicaemia.

I desire to express my thanks to my colleagues in charge of the ear, nose, and throat departments for allowing me to see and record these cases.

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[1] Keen, J. A.: *Journ. Laryngol. and Otol.*, January, 1932.
[2] Nesbitt, Elizabeth: *British Medical Journal*, 1934, ii, 509.

M. Gundel and F. Müller-Voigt (*Deut. med. Woch.*, November 2nd, 1934, p. 1664) give an account of a hurricane campaign of diphtheria immunization in the town of Duisburg-Hamborn. With a population of 440,000 it has suffered more and more from diphtheria since 1928. In that year there were 1,438 cases and 112 deaths. In 1933 the cases rose to 2,090 and the deaths to 126. In 1934, up to September, there were as many as 2,214 cases and 160 deaths. Artificial immunization of the children seemed, therefore, urgently indicated, and within the space of six days first injections were given to 23,000 of the 38,562 children between the ages of 1 and 5, and to 57,034 of the 64,450 school children between the ages of 6 and 14. The material used was formol-toxoid and toxin-antitoxin, and the immunization was effected by three injections. In the absence of legislative measures wherewith to enforce this undertaking, the authors achieved rapid, wholesale immunization of the town's juvenile population by means of systematic educational propaganda and a well-organized campaign, which required the co-operation of more than a hundred doctors and over 3,000 other workers, about 1,700 of whom were school teachers. The propaganda included articles in the Press, and addresses. It was found much easier to deal with the school child than with the pre-school child, as the former could be shepherded by their teachers, whereas the latter required extraction from their homes, a process which could not be achieved by simply inserting notices in the Press. The rate at which the school children were inoculated, after some practice had been acquired, was 140 to 150 per hour ; the rate was considerably slower for the pre-school children.

ACUTE IODISM FOLLOWING LIPIODOL BRONCHOGRAPHY

BY

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The use of lipiodol for bronchography has now become so much a part of the routine investigation of non-tuberculous chest diseases that the occurrence of any severe complication appears worthy of record.

Lipiodol consists of poppy-seed oil in which 40 per cent. of iodine is held in chemical combination with the unsaturated fats. The possibility of the production of toxic symptoms in patients with an idiosyncrasy for iodine is obvious. However, severe symptoms from this cause appear to be rare, owing to the close chemical combination in which the iodine is held. Sicard and Forestier[1] state that they have encountered only transient iodism of benign type. A report[2] of the Council of the American Medical Association on the dangers of the injection of iodized oils makes no mention of the possibility of dangerous toxic symptoms. Firth[3] describes a personal experience of troublesome but not serious symptoms from iodine sensitivity following endotracheal introduction of chloriodized peanut oil ; in addition to coryza, lachrymation, and an urticarial rash, he had a transient parotitis and severe frontal headache, all passing off within a week. Carmichael[4] records two considerably more severe cases after lipiodol, characterized by vomiting, diarrhoea, conjunctivitis, and a haemorrhagic, urticarial, and bullous rash. Both cases improved rapidly within a week. O'Donovan[5] reports a case in which death occurred six weeks after lipiodol injection, accelerated by the aggravation of a previously existing papulo-pustular rash.

The two cases described in this communication, one of which proved fatal, occurred recently at the Brompton Hospital. Over 2,900 lipiodol examinations have been performed at this hospital without a previous serious accident from iodine sensitivity. A transient coryza with lachrymation and possibly a mild urticarial or erythematous rash, all passing off within a few days, have been observed not infrequently. In a few cases more severe rashes—appearing rather later, up to a week or ten days after the injection—have occurred. These tend to be of an acute and irritant urticarial type. Headaches have followed the injection in rare instances, and in one case frontal headache was severe enough to cause suspicion of acute glaucoma. I have been unable to find any previous record in the literature of a fatality directly due to acute iodism consequent on the diagnostic use of lipiodol.

Case I

A man, aged 46, was admitted to the Brompton Hospital in August, 1933. He was referred from a sanatorium, where doubt about the original diagnosis of pulmonary tuberculosis had arisen on account of atypical *x*-ray appearances and persistently negative sputum examinations. The differential diagnosis appeared to rest between chronic lung abscess and neoplasm. His general condition was poor, and he had lost 3 st. in weight.

On August 22nd I introduced 20 c.cm. of lipiodol by the subcricoid route. The film taken after this showed a good outline of the bronchi, with a probable chronic bronchiectatic abscess of the right upper lobe ; there was no lipiodol in the stomach. Six hours later he had developed marked coryza, with nose-bleeding, salivation, and injection of the conjunctivae. The following day he was obviously weaker ; the pulse was rapid and of poor volume, and the temperature was rising ; the nose-bleeding continued. Scattered petechiae had appeared, especially on the dorsum of the hands and

forehead ; the conjunctivae had become grossly oedematous, and haemorrhages had occurred into them ; the tongue was swollen, and there was a large submucous haemorrhage in it. The submaxillary glands had become very swollen and tense.

On the next day, August 24th, all the symptoms were more severe ; the blood pressure was reduced to 85/60. An urticarial element was evident in the rash, which had become more widespread ; subcutaneous haemorrhages were seen over the pressure points, especially the right elbow and the sacrum. There was marked dyspnoea, and scattered moist rales were audible over both lungs. There was great difficulty in swallowing on account of the grossly swollen tongue, but no evidence of oedema of the glottis sufficient to cause obstruction. Bleeding from the nose and gums continued ; the patient was unable to open the oedematous and haemorrhagic eyelids. He ultimately died, from exhaustion and pulmonary oedema, fifty-four hours after the lipiodol injection.

The treatment in this case consisted of the administration of a saline purge at the onset of symptoms ; adrenaline locally to the swollen tongue and fauces failed to reduce the oedema ; atropine was given to check excessive bronchial secretion ; and sodium thiosulphate, 0.5 gram intravenously, produced no improvement.

Post-mortem Examination.—This was performed by Sir Bernard Spilsbury, and the following is a summary of the relevant pathological changes. External appearances: numerous large petechiae in skin of face, with larger haemorrhages in skin of upper eyelids and in conjunctivae. Numerous petechiae in skin of hands and feet, a few on rest of limbs and trunk. A group of large haemorrhages with ulceration over back of right elbow and over sacrum. Raised red nodule over trachea ; no septic change found on incision. Heart: pericardial cavity obliterated by fine old adhesions. Extensive haemorrhages into visceral pericardium, chiefly over left ventricle. Heart somewhat enlarged and dilated. Small haemorrhages in myocardium, and one in endocardium. Microscopically, slight fatty degeneration and some brown atrophy of the muscle. Air passages congested, large petechiae in mucosa of trachea, becoming confluent in larynx. Oedema of ary-epiglottidean folds, especially on right side. Lungs: very dense adhesions over upper part of right lung ; marked bronchiectasis, with fibrosis of upper half of right upper lobe, with a large cavity in lower part of lobe. Lower parts of both lungs congested and oedematous. Liver: small haemorrhages into substance. Kidneys: cloudy swelling and congestion. Intestines: haemorrhages in mucous membrane of middle third of small intestine. Tongue: haemorrhage in left side of tip, forming a small nodule. Submaxillary glands: enlarged, with haemorrhages beneath capsule and between lobules.

Case II

The patient, a woman aged 59, had been attending the hospital for some years. In 1930 a lipiodol examination was performed, and showed bilateral basal cylindrical bronchiectasis. She had been treated on frequent occasions with medicines containing potassium iodide, though the dosage did not exceed 15 grains daily ; neither the lipiodol nor the iodide had caused toxic symptoms. A second lipiodol examination was performed on June 29th, 1934, 20 c.cm. being introduced by the crico-thyroid route, the patient subsequently returning home. The *x*-ray film showed more advanced bilateral bronchiectasis.

She was admitted to hospital on the following evening, June 30th, acute symptoms having appeared about six hours after the injection. On admission she had an urticarial rash with large purpuric patches over both olecranons, and just below the knees. There was gross painful swelling of both forearms, round both elbows, and behind the knees, the appearances resembling those of cellulitis. The face was puffy, the conjunctivae grossly swollen, with purpuric patches in them and in the eyelids. There were a few purpuric spots on the tongue, and one on the upper lip. The chest was full of bubbling rales and rhonchi ; cough was difficult. There was some dysphagia.

On July 2nd all symptoms were more severe. The brawny swellings on the forearms were extremely painful. The patient was unable to swallow even fluids, but there was no respiratory obstruction in the larynx ; adrenaline locally failed to reduce the swelling sufficiently to render swallowing possible. The pulse was of very poor volume. The urinary output was scanty, and there was a cloud of albuminuria ; the patient was rapidly becoming weaker.

It was thought that the lack of circulating fluid owing to deficient intake and to withdrawal of fluid into the oedematous tissues was the chief cause of the asthenia ; 25 oz. of hypertonic (1.8 per cent.) saline with 5 per cent. glucose was therefore given intravenously. In spite of a rigor, very definite improvement followed within a few hours ; the patient was able to swallow fluids freely, and the pulse became stronger. During the next few days steady improvement continued. The brawny oedema of the limbs persisted for a week, and the purpuric areas on the elbows, knees, eyelids, and upper lip ulcerated and healed under scabs. A purulent infection of the oedematous conjunctivae occurred, but cleared up without complications. The patient was not fit to leave her bed for four weeks, but eventually made a good recovery.

Discussion

There can be no doubt that the toxic symptoms in these two cases were due to hypersensitivity to iodine. The fact that the second patient had already had a lipiodol injection, and had been treated with potassium iodide medicinally without ill effect, shows that testing for sensitivity by a dose of potassium iodide is of little value. It also suggests the possibility of the symptoms having been due to an abnormal sensitivity to the poppy-seed oil component of the lipiodol. This appears to be negatived by the close similarity of the symptoms to those known to be produced by iodine sensitivity. A case presenting very similar symptoms, though without the haemorrhagic rash, after a single dose of 25 grains of potassium iodide, has been reported by Snell and Savin.[6] There can be no question of impurities in the lipiodol, as in both cases it was perfectly clear, and other injections with the same batch gave rise to no ill effects.

The accidental introduction of lipiodol into the stomach is generally considered to be a necessary antecedent of toxic symptoms. In neither of these cases was there lipiodol in the stomach when the *x*-ray film was taken, but it is possible that, in spite of instructions to the contrary, the patients swallowed some after coughing it up. Sicard and Forestier,[7] however, have shown that, judging the rate of absorption of lipiodol by the rate of elimination of iodine in the urine, the rates of absorption from the lungs and from the gut do not differ so much as might be expected. For instance, they found that if lipiodol is administered in capsules by the mouth 34 per cent. of the iodine is excreted by the kidneys within five days ; if introduced into the bronchi, 20 to 23 per cent. is thus excreted.

It appears, therefore, that the greatest care in testing for sensitivity to iodine and in avoiding the introduction of lipiodol into the alimentary tract will not always prevent the occurrence of serious symptoms from iodism after the diagnostic use of lipiodol. It is suggested that in the fortunately rare event of such symptoms being severe, the use of intravenous hypertonic saline is a theoretically rational and practically useful measure.

I am indebted to Mr. Tudor Edwards and Dr. A. L. Punch for permission to report these cases, and to Sir Bernard Spilsbury for allowing me to use his post-mortem record.

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[1] Sicard and Forestier: *The Use of Lipiodol in Diagnosis and Treatment*, 1932, p. 111.
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[4] Carmichael: *Canadian Med. Assoc. Journ.*, 1932, xxvi, 319.
[5] O'Donovan: *British Medical Journal*, 1927, ii, 935.
[6] Snell and Savin: *Lancet*, 1927, i, 759.
[7] Sicard and Forestier: *The Use of Lipiodol in Diagnosis and Treatment*, 1932, p. 5.

Clinical Memoranda

A NOTE ON DRUG ADDICTION TREATMENT

When his particular method finds a place in the text-books its author may believe that later developments should be published, even though the field covered is of restricted general interest. Addiction is rare in England, but abroad the demand for a reliable treatment is ever more insistent. It may be worth while, therefore, to describe a radical improvement and simplification of the "painless method" associated with my name, whereby the process of medical withdrawal can be carried out successfully by any careful practitioner.

First, as to rationale. Drugs of the atropine group have been employed in countless systems, but always previously in massive doses to produce delirium and confusion, under cover of which the patient is separated from his drug. All such methods constitute a serious shock to the frequently debilitated addict, with the result that convalescence is delayed and the final issue imperilled. A very different use of atropine has great advantages and no such dangers.

Atropine shows two distinct and, in some respects, opposite effects, as it is given in minute or in ordinary doses. With the latter, of course, vagal depression is constant, but such small amounts as 1/1000 to 1/500 grain occasion vagal stimulation. I have shown that this primary vago-stimulant action of small doses continues when tolerance to atropine is established. Thus a patient who has received frequent minute doses for a week will show a slowed pulse when the dose becomes 1/100 grain. This fact is used in my simplified process of withdrawal.

The morphinist or other addict is one who has become accustomed to preserve vagal preponderance and sympathetic depression by means of his drug. Less than his normal supply means sympathetic overaction, while deprivation ushers in a series of sympathetic explosions which may even endanger life. On the other hand, frequent minute doses of atropine secure for him the steady vagal tone which means a smooth passage to recovery.

The process is very simple in practice. Atropine 1/100 grain is dissolved in saline with the day's supply of morphine, "half a drachm to be injected every two hours while the patient is awake." Obviously sleep is a measure of the patient's comfort, and the more he sleeps the fewer the doses needed. The amount of drug actually used forms the maximum for the day following, and the process is continued until less than 1/4 grain is taken in the twenty-four hours. Atropine is increased so slowly that ocular symptoms are not produced, and luminal administered in large and increasing amounts. The method is automatic and self-regulating, and the test of success is a slightly slower-than-normal heart beat, which is quite invariable with proper dosage.

The conception of the addict as sustaining by his drug an artificial vagal preponderance, and needing to have it continually sustained throughout withdrawal, is also useful when convalescence is considered. He will be safe from unpleasant sensation so long as his threshold of fatigue is not exceeded, but if he oversteps the mark sympathicotonia immediately is manifest. His physical and mental powers will rapidly improve, but their exercise must be most carefully watched, especially in the early stages, and, indeed, it may be doubted whether a completely normal day's work should be undertaken for several months.

Painless withdrawal, anxious consideration of problems of fatigue, and adequate psychological treatment are the three factors without which constant success is impossible. The neglect of one, and often of all, has made the usual prognosis in addiction unduly gloomy.

London. G. LAUGHTON SCOTT, M.R.C.S.

RETROPERITONEAL SARCOMATOSIS

The following case should be of interest by reason of its rarity and the difficulty in diagnosis.

A woman, aged 47, was seen in the out-patient department of the Southport Infirmary on June 4th, 1934, when she complained of generalized abdominal pain and weakness. She said that she had been ill for about a month, but had rapidly become worse during the past few days, and had noticed that her abdomen was rather larger than usual. She had not vomited, her bowels were acting normally, she complained of no urinary symptoms, and the menstrual history was normal. Her past history revealed that a Caesarean section had been performed twelve years previously; she had been troubled by chronic kidney disease, resulting in albuminuria of pregnancy.

On examination she looked extremely thin, pale, and generally very ill, and gave the impression of a typical malignant cachexia. The temperature was 97°, pulse 124, and respirations 24. The tongue was dry, though not coated. There was nothing of note in the chest; the abdomen was distended, and a hard, irregular swelling was felt in the left iliac region, though it was difficult to discover anything definite on account of some free fluid. There was slight tenderness and rigidity on palpation in the left iliac fossa. The liver was apparently normal, the spleen could not be palpated, and the kidneys presented nothing abnormal. Digital pelvic examination proved negative. The urine was examined, and was found to contain albumin and pus. There was general swelling of the left lower limb.

The patient was seen by a physician, and a laparotomy was advised. She was admitted to hospital for this purpose on June 6th. The urine was subjected to a pathological examination, but no additional information was gained. The urinary tract was *x*-rayed, but nothing abnormal was found. The patient's condition, however, became rapidly worse. The skin was moist, and she perspired a great deal, the tongue remaining dryish. The abdomen became very much more distended, pain increased, and she vomited bile-stained fluid. Very little urine was passed during the last two or three days of the illness. The patient died suddenly on June 15th, without a diagnosis having been arrived at.

POST-MORTEM FINDINGS

On opening the abdomen a large quantity of dark, straw-coloured, apparently infected free ascitic fluid came away, and then a very unfamiliar picture presented itself. The omentum was pale, rather vascular, nodular, and fixed down to the sigmoid flexure, where there was a focus of active inflammation, due to diverticulitis. The intestines were pale, shrunken, atrophic, coated with lymph, and studded here and there with small, pale nodules. The stomach and duodenum appeared normal. There was no sign of any growth in the intestinal tract. The liver was pale in colour and normal in size, and the spleen was normal. The pelvic organs were very atrophic, and studded with the same type of nodules as the intestines. Kidneys were normal in size, but there was a pyelitis affecting each pelvis. There was a very hard extensive mass, which appeared regular on the surface, situated behind the mesenteric attachment of the intestines, extending along the vertebral column on each side, and spreading upwards towards the upper regions of the abdomen.

Sections were cut of the liver, omentum, and of a piece taken from the retroperitoneal mass, and microscopical examination revealed the liver to be in a state of toxic hepatitis, with fatty degeneration of the hepatic cells. Pieces of the thickened omental and retroperitoneal tissues showed a generalized sarcomatosis of the large round-celled variety.

One can conclude that this was a case of primary retroperitoneal sarcomatosis, possibly of lymphoid origin, and that the omentum and other parts of the abdominal cavity were affected by secondary sarcomatous deposits. The rapidity with which death took place, following a comparatively short illness, probably bears out these facts.

I should be very interested to hear other views on the subject, and of any other cases of a similar nature which have occurred recently.

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Reviews

CHILD GUIDANCE CLINICS

There are now more than two hundred child guidance clinics in the United States of America, and during the last few years their number in this country has been increasing. The name is not altogether a good one, and there are several clinics here which have never used it. The Institute of Medical Psychology in London, for instance, where one-third of the patients are children, had been doing work such as that carried out in the best American clinics for years, but has deliberately avoided the name. There are many medical men and others who still seem to have no clear idea of the work done at such clinics, and, indeed, the clinics themselves vary a good deal in character, and are conducted under diverse auspices. Those who wish to know more about their nature and activities will value a book recently published by the Commonwealth Fund, by Dr. G. S. STEVENSON and Mr. GEDDES SMITH, entitled *Child Guidance Clinics: A Quarter Century of Development*.[1] The book deals entirely with the American situation, and is based solely on American experience. This is reasonable, as the main pioneer efforts were made in that country, and it is by the help of the Commonwealth Fund that a considerable part of the work in England has been made possible. There are, however, beginning to be shown some divergencies of view and of method as the common type becomes adapted to the needs and conditions of this country.

The type is essentially an organized co-operation. The psychiatrist (in the wider American acceptation of the term), the psychologist, and the trained social worker are the essential members of the team, but with them should be associated the paediatrician, the teacher, the family doctor, and, of course, wherever possible, the parent. It offers, probably, the best example of that team-work which the modern wider outlook of medicine is rendering more and more imperative. The psychiatrist or psychotherapeutist should always be the leader of the team, but the exact relationship between each member and the others will vary somewhat in different clinics; and it is important to remember that "the co-operative situation demands not only participation in the study of a case but continued team-work in treatment." The children whose emotional state or difficult behaviour has led to their reference to the clinic must definitely be regarded as patients; but "diagnosis in a child guidance clinic is not a pigeon-holing word or phrase, but a reconstruction of the case." The patients come from various sources, some from the recommendation of the family doctor, some from schools, from children's courts, or from hospitals of the ordinary type; and the methods of the clinic may well vary within limits in accordance with the proportion of children coming through each of these channels. Not infrequently it is found that "treatment of the mother is an almost invariable concomitant of treatment of the child," but this should not be undertaken at the clinic unless it is the most promising way of solving the emotional difficulties of the child, and always in direct relationship thereto. In all clinics a play-centre is almost essential both for diagnosis and for treatment; for "in the use of playthings and play situations young children often reveal emotional problems which they would be unlikely to put into words," and unfettered play, or play which is not obviously directed or controlled, is frequently a valuable means of treatment.

The usual course of clinical activity, though developing on this pattern, is not yet fixed, but is proving of great service to individuals and must be regarded as definitely preventive in relation to delinquency and mental disease. The best clinics, moreover, are much more than therapeutic agencies: their educational activities, both for the medical practitioner and for the social worker, have greatly extended, and the opportunities for research which they afford are very valuable, though at present scarcely used.

BRONCHOSCOPY, OESOPHAGOSCOPY, AND GASTROSCOPY

The call for a third edition of *Bronchoscopy, Esophagoscopy and Gastroscopy*[2] has given Dr. CHEVALIER JACKSON the opportunity for bringing this well-known book up to date in some particulars. The chief direction in which this is required is due to the extension of endoscopic diagnosis and treatment, and some fresh coloured plates in the famous style of Dr. Jackson, showing views of the bronchi and oesophagus, even surpass the old familiar ones in vividness of colouring and artistic merit. The possibility of removing small pins from the periphery of the lung is described here, as also very fully in the recently published *Foreign Body in the Air and Food Passages, Roentgenologically Considered*. The word "possibility" is used, because it may be doubted if Dr. Jackson has laid quite enough emphasis on the fact that the number of bronchoscopists competent both by training and equipment to attempt such removals must be, and always will be, very small.

Reading the book again, it is impossible not to gain the impression that many of the problems which are of daily, or at least of frequent, occurrence in the author's bronchoscopic clinic are seldom encountered in this country, even in large clinics, and that the conditions of practice must be different in many ways. It is, however, a book with which any practitioner who claims to be a specialist in laryngology must be absolutely familiar, for in this volume the whole subject is brought to its essentials. To gain historical perspective it should be read in conjunction with the old *Peroral Endoscopy and Laryngeal Surgery*, if that is available. Dr. Jackson himself says that the bronchoscopist is likely to see things narrowly through a small tube metaphorically as well as actually, and for that the historical perspective is the proper correction.

PHYSIOLOGICAL CHEMISTRY

Turning over the first few pages of his book, which Professor MCCLENDON entitles *Manual of Biochemistry*,[3] one becomes immediately aware that it is no ordinary text-book on biochemistry, and that it is therefore advisable to go at once to the preface for a better idea of its scope than is conveyed in the title. The book represents in the words of the author "a condensation and rewriting of mimeographed material with considerable additions." It is essentially a catalogue of facts, the arrangement of which, so as to accommodate all his data, has obviously presented the author with considerable difficulty. Almost every conceivable subject or substance connected with animal or plant biochemistry receives mention, some at length, such as the vitamins and hormones, while others

[1] *Child Guidance Clinics: A Quarter Century of Development*. By George S. Stevenson, M.D., and Geddes Smith. New York: The Commonwealth Fund; London: H. Milford, Oxford University Press. 1934. (Pp. 186. 6s. 6d. net.)

[2] *Bronchoscopy, Esophagoscopy, and Gastroscopy. A Manual of Peroral Endoscopy and Laryngeal Surgery*. By Chevalier Jackson, M.D., Sc.D., LL.D., F.A.C.S., and Chevalier L. Jackson, A.B., M.D., M.Sc., F.A.C.S. Third edition, reset. Philadelphia and London: W. B. Saunders Company. 1934. (Pp. 485; 207 figures, 15 coloured plates. 37s. 6d. net.)

[3] *A Manual of Biochemistry*. By J. F. McClendon. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1934. (Pp. 381; 58 figures. 31s. net.)

are dismissed in a sentence, coupled with a single reference to the literature. This volume is certainly a storehouse of information. Little-known points of interest are jotted down concerning most substances, and many more data appear regarding the inorganic elements than can be found in any other biochemical work. Laboratory methods in condensed form find a place near the end, but those selected are not always the most recently published modifications of the authors quoted. Lastly, there is a table, printed on tinted paper, in which data concerning a thousand substances of biochemical interest are recorded. A great deal of labour must have been expended in the compilation of this work, but since access to the literature is rendered so comparatively easy nowadays, through the existence of comprehensive and efficient systems of indexing, one is left wondering in the end whether it has been quite worth while.

In preparing his *Introduction to Physiological Chemistry*[4] Professor MEYER BODANSKY had as his chief aim the provision of a small textbook which would be sufficiently comprehensive to cover the whole field, and at the same time would aid the student to correlate biochemistry with its allied sciences. The first edition, which appeared in 1927, met with a warm welcome, and the fact that the volume under review represents the third edition provides further testimony to the skill and success with which the author has carried out his purpose. It is an attractively written book, and manages to convey in full measure to the mind of the student the fascination of a subject which has made amazing strides in recent times. Though called an introduction, its standard goes beyond the elementary, and the student is constantly referred to original sources for fuller discussions of the particular topic under consideration. It is indeed exceedingly well documented with a judicious selection of references. The present edition brings the material right up to date. Recent advances have not been merely tacked on, but the sections to which they apply have been rewritten so as to bring out the true relationship of the latest discoveries to the basic work which has preceded them, and to indicate their place on a frontier ever being extended into the unknown. Professor Bodansky is equally authoritative whether dealing, on the one hand, with the foundations built upon pure organic and physical chemistry, or, on the other, with the clinical applications of the science. It would be difficult to improve upon the manner in which he accomplishes his task within the compass of 662 pages.

THE PROBLEM OF MYOPIA

As is implied by its name, Stretching of the Eye (Myopia) and its Treatment,[5] Professor GRUNERT'S monograph is a reversion to an old view of a baffling problem. The author dismisses the highly significant work of Steiger, holding that Steiger's biomathematical approach leads to therapeutic nihilism, and that its clinical value is therefore limited. Harking back to the fallacies which gave a limping justification for the use of both full correction and under-correction, atropine and eserine, and almost every other conceivable mode of treatment, the author urges that myopia is the result of the yielding of the sclerotic induced by changes in the intraocular pressure during childhood. Arguing from the fact that the posterior segment of the eye consolidates at a later period than the anterior segment, he further holds that myopia is the result of a persistent infantilism of the sclerotic, this being sometimes hereditarily determined, but generally the consequence of an abnormality of the ciliary muscle. On this basis he advocates the use of pilocarpine in an attempt to bring the ciliary muscle to a normal state, and thus to put the eye into a position of fending for itself against the progression of myopia. So successful does he consider his results that he regards the treatment of myopia as one of the most grateful tasks in medicine. To illustrate his thesis he gives a number of case reports. To the reviewer these case reports are indeed convincing—that is to say they confirm his belief that a method which will render the treatment of myopia a " grateful task " is still to come, and that ingenuity spent in resurrecting old views on myopia is a waste of labour.

[4] *Introduction to Physiological Chemistry*. By Meyer Bodansky, Ph.D. Third edition, rewritten and reset. New York: John Wiley and Sons, Inc.; London: Chapman and Hall Ltd. 1934. (Pp. 662; 39 figures. 25s. net.)

[5] *Die Dehnsucht des Auges (Myopie) und ihre Behandlung*. By Professor Dr. Karl Grunert. München: J. F. Lehmann. 1934. (Pp. 161. M. 7; Lwd., M. 8.50.)

JOHNSTONE'S MIDWIFERY

The short interval that has elapsed since the previous edition of Professor R. W. JOHNSTONE'S *Textbook of Midwifery* indicates that its enlargement and resetting have increased its already wide appeal. Careful revision has been a feature of past editions, and is again prominent in this issue,[6] including minor alterations and some of major importance. Among the former are changes in the chapter on menstruation required to meet the constant flux of opinion on the biochemical aspects, the inclusion of recent work on the changes in the foetal circulation at and after birth, and on the treatment of puerperal haemorrhages. The use of the forceps in the delivery of the after-coming head is advocated more strongly than before on account of the lessened risk of brachial palsy.

Alterations of principle include the adoption of the terminology approved by the Anatomical Society of Great Britain, and the separation from the section on the physiology of the puerperium of the portions dealing with the newborn child, which have been made into a new section. In it are three chapters giving a succinct account of the physiology and management of the infant, its diseases and birth injuries, and the methods of artificial feeding. The additional space and greater prominence thus given to this part of the subject serve to bring it into its due perspective. We have a little grumble, however, because part of the physiology of the breast is left in its former position, and the most has not been made of the valuable lessons in the direct application of physiology to clinical practice that a somewhat fuller study of mammary function can furnish.

By bringing into apposition the physiological and the pathological this new section follows a suggestion put forward in our review of the previous edition, but the author states in his preface that although he has pondered over the advice to do likewise throughout the book he prefers his original plan. There can be no argument about his decision, for every teacher must have full liberty to teach his lesson in the way he thinks best, and Professor Johnstone doubtless feels that an arrangement suitable for a short section is not equally suitable for the lengthier ones. But he will perhaps accept, in theory at any rate, the view that in training students the closer that ordered function can be contrasted with the disordered the easier it becomes to stress the importance of promoting the normal and the early detection of the passage into disordered function.

Our high opinion of the excellent instruction, scientific and practical, of Professor Johnstone's textbook is enhanced by its latest edition.

[6] *A Textbook of Midwifery for Students and Practitioners*. By R. W. Johnstone, M.D., F.R.C.S.Ed., F.C.O.G. Seventh edition. London: A. and C. Black, Ltd. 1934. (Pp. 463; 277 figures. 18s. net.)

THE MEDICAL DIRECTORY, 1935

Once again we welcome a new edition of the *Medical Directory*—the ninety-first annual issue—for 1935.[7] The title-page is now in a handier position near the front cover, and the list of contents appears in bolder and more legible type, occupying two pages instead of one. So far as can be judged from preliminary glances through this substantial volume of nearly 2,400 pages, which will be our desk companion for the next twelve months, every compliment we have paid the *Medical Directory* in former years is fully earned again. No reference book surpasses it in accuracy and finish. The numerical summary of the medical profession shows that the names now number 57,128, being 649 more than the total for 1934. The largest increases are again in the geographical sections devoted to London and the Provinces of England. The entries under "Abroad" have grown to over 10,000, and Scotland shows an increase of thirty-two names. On the other hand, in Wales there has been a decrease of six; the Services have dropped by sixteen, and Ireland by 104. The section on "British Health Resorts: Spas, Seaside, and Inland," edited by Dr. Fortescue Fox, is now the official handbook of the British Health Resorts Association, and no longer appears as part of this volume. The twenty-sixth edition will be published early next year, and a copy will be sent gratis to every subscriber to the *Medical Directory*. The "Late List" of new names, changes of addresses, etc., appears at pages 2210 to 2213.

Notes on Books

Since the second edition in 1926 Dr. HALLS DALLY'S handbook on *High Blood Pressure: Its Variations and Control*[8] has been largely rewritten, and now provides an up-to-date and readable review, with special reference to practice and treatment. A good account is given of the clinical methods of estimating blood pressure, in which the precautions necessary to avoid fallacies such as errors in the systolic pressure are described, and the author's graphic method of representation on squared paper of various grades of arterial pressure is illustrated. This is followed by a well-illustrated chapter on the numerous sphygmomanometers available, among which the Baumanometer ("kompak" model) is recommended as meeting the requirements of most general practitioners on the grounds of accuracy, simplicity, permanence, portability, and strength of construction. In a discussion on the mean pressure the author concludes that there is not any good reason for attributing to it the great importance that the French school under the influence of Pachon and Vaquez have done. The causes and clinical picture of raised blood pressure are systematically considered, and much attention is paid to the numerous methods of treatment. Of the organotherapeutic substances liver extract, at one time advocated, has failed to produce any lasting benefit; but in selected cases the author has had encouraging results with vagotonine and, on the whole, satisfactory improvement with acetylcholine. Bismuth subnitrate, which gives off minute quantities of nitrite ions continuously in the intestine, is recommended in patients free from advanced arteriosclerosis.

Professor H. KLEINSCHMIDT has revised his well-known "Therapeutic Vade-mecum for Paediatric Practice"[9] for a seventh edition, and in doing so has incorporated up-to-date methods and modifications in feeding, medicaments, and physical methods. In the dietetic section Professor Kleinschmidt's own predilections are apparent, and an appendix describes the special preparations required.

[7] *The Medical Directory, 1935.* London: J. and A. Churchill. (36s.)

[8] *High Blood Pressure: Its Variations and Control. A Manual for Practitioners.* By J. F. Halls Dally, M.A., M.D. Third edition. London: William Heinemann (Medical Books) Ltd. 1934. (Pp. xxii + 281; 47 figures. 15s. net.)

[9] Berlin: S. Karger. 1935. (Pp. 234. RM. 6.60.)

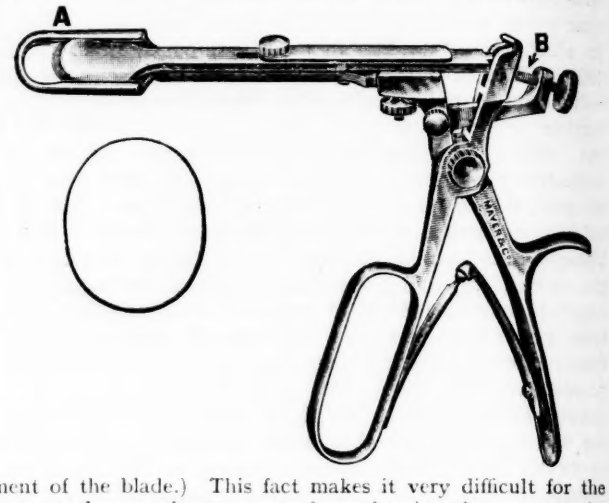
Preparations and Appliances

A TONSIL GUILLOTINE

Mr. ARTHUR MILLER, F.R.C.S. (London, W.1), writes:

The guillotine is still extensively used for the enucleation of tonsils in children. When this is done under a prolonged general anaesthesia the expert will succeed in removing the whole tonsil, conserving both anterior and posterior pillars, no matter what type of guillotine is used. Unfortunately, tonsillectomies are still performed by the short-anaesthetic method, owing to circumstances beyond the surgeon's control. He is then called upon to perform the acrobatic feat of enucleating both tonsils and adenoids in a fraction of a minute, and leaving both anterior and posterior pillars intact and unblemished. It is then that the type of guillotine used plays an important part in the efficient removal of the tonsils. The guillotine illustrated here has been used by me for some considerable time, and, it is claimed, overcomes the difficulties mentioned. The features of the instrument are as follows:

1. The fenestra is oval, and is of sufficient length to permit the longitudinal diameter of the tonsil being engaged without undue squeezing. (Any pressure required is produced by the transverse diameter of the ring with or without adjustment of the blade.) This fact makes it very difficult for the upper or lower poles to escape from the ring the moment the blade is pushed home, a not uncommon occurrence when small-sized guillotines are used, particularly when enucleating flat or non-pedunculated tonsils.



2. The size of the fenestra can be regulated by the action of the screw (B). This does away with the necessity of employing different blades. The appearance of the tonsil on simple inspection is deceiving, and its actual size is often only appreciated after its dislocation from its bed; it is obviously an advantage to be able to adjust the size of the fenestra with the guillotine actually in the patient's mouth.

3. The bevelled edge of the blade prevents the anterior pillar from being drawn into the slot of the head when the blade is driven home. It is a common experience (except when using the reversed guillotine) to find the anterior pillar damaged in spite of correct application of the guillotine, particularly when dealing with flat or non-pedunculated tonsils. This is, in my opinion, due to the anterior pillar being dragged towards or into the slot of the head, where the actual damage often takes place. The bevelled blade peels the anterior pillar off the tonsil, folding the former, as it were, on itself.

4. The action of the guillotine is particularly smooth, as all the joints are of the ball-and-socket type. It is easily taken to pieces for cleaning purposes.

Messrs. Mayer and Phelps of New Cavendish Street, W.1, are the makers of this instrument.

GRAPE JUICE

Key Brand Grape Juice is a product of the Co-operative Wine Growers' Association of South Africa. After prolonged research a process has been discovered by which grape juice can be preserved without pasteurization, and its full natural qualities thus retained. The product is reported upon favourably by South African physicians. A bottle of reputed quart size, which contains the juice of 8 lb. of grapes, costs only 2s. This grape juice therefore provides the nutritive properties of grapes at a very low cost, and should be very popular.

KING EDWARD'S HOSPITAL FUND

ANNUAL DISTRIBUTION

The Prince of Wales, presiding at the annual distribution meeting of King Edward's Hospital Fund for London at the House of Lords on December 11th, read a message from the King expressing delight at hearing that the Fund would again distribute £320,000. His Majesty added that this result was a great tribute to those who supported the Fund, as well as to those who were managing its affairs.

His Royal Highness explained that this distribution was made up of £20,000 in special grants towards the pensions scheme, and an ordinary distribution of £300,000, the third successive occasion on which this figure had been reached. In 1932, when the amount had first been granted, the financial crisis had been expected to inflict serious difficulties on the hospitals. On the whole these difficulties had been successfully surmounted, but only by a great effort. More than two million pounds a year had been subscribed in London alone in voluntary gifts towards maintenance, building, and endowment, while patients had contributed last year £1,200,000, of which £365,000 had come through the Hospital Saving Association. Except in the pay wards, the patients' contributions were also voluntary, and those who could not afford to make any payment were treated free. It had, however, to be remembered that the surplus was only a small margin of income over expenditure, and there were not many hospitals which had such a surplus year after year. The expenditure was constantly increasing, because the hospitals were compelled to keep up with advances in methods of treatment, and so incurred added responsibilities in the form of extensions, improvements, and the maintenance of additional beds. In spite of the aggregate margin on the right side, there were still several hospitals with deficits, despite strenuous efforts to make both ends meet. All these reasons for continuous regular support of the hospitals were reflected in the King's Fund distribution. The grand total had been retained undiminished, but rather larger grants had been made to schemes of extension and improvement, and to hospitals which had failed to balance their expenditures. The Prince noted with pleasure that several more hospitals had adopted the waking hour of 6 o'clock for their patients, as recommended by a special committee of the King's Fund. Those which still had an earlier hour represented only 15 per cent. of all the patients in London, including those in some of the special hospitals, where earlier hours might be necessary. The question was not as easy as many people had thought, but it was hoped that the difficulties at some of these institutions might yet be overcome.

THE PROBLEM OF ROAD ACCIDENTS

The problem of road accidents continued to inflict serious embarrassment by necessitating the occupation of beds which were urgently needed for other purposes, and by entailing heavy charges on the hospital funds, which had been contributed for these other purposes. The latest amendment to the Road Traffic Acts dealt with emergency treatment rendered either by a private practitioner or by a hospital. The Parliamentary Committee of the Fund, in conjunction with the British Hospitals Association, was at present trying to discover how the partial provision that had been made by Parliament worked out in practice ; it was then intended to prepare a statement of the arguments for and against the various alternative methods which had been suggested for making more complete provision. In this way it was hoped to discover how far agreement could be reached as regards the best form of remedy, since there was already general agreement that a remedy was needed. The Prince recalled the steps taken by the King's Fund in the last few years, especially in connexion with the transfer of accident patients from a hospital where there was no room to another where accommodation was available, and by the making of special grants towards the provision of beds for accident cases out of money accruing from the Wells legacies. But the number of road accidents had increased to such an extent that sometimes, especially in outlying hospitals near the great highways, they might overflow all the accident beds, and enforce the sending elsewhere of urgent local cases of the kind for which the hospital was primarily intended.

PAY-BEDS AND OUT-PATIENTS

The Parliamentary Committee of the Fund was also co-operating with the British Hospitals Association with a view to obtaining general agreement as regards the provision of pay-beds for members of the middle and professional classes who could not otherwise obtain necessary treatment. Some hospitals, owing to the wording of their original trusts, could not legally make such provision, and the question was how best could be conferred upon all hospitals the powers now possessed by so many, while yet preserving their original objects, or, as the King's Fund Committee put it, " with due safeguards for the maintenance and extension of the ordinary beds." The Out-patient Arrangements Committee proposed to issue shortly for discussion by the hospitals a preliminary draft of a memorandum on time-saving methods at the dispensary stage where patients were supplied with medicines. This committee was also associated with the Management Committee's report on district nurses, in which it was suggested that the King's Fund, so soon as it was in a position to provide an additional £2,000 a year for the purpose, should make extra grants to enable hospitals to pay district nursing associations to look after patients in their own homes who did not require to see a medical practitioner on every occasion when they came up to the hospital for fresh supplies of medicine. This scheme would help financially in the extension of district nursing work, and would relieve some of the pressure on out-patient departments. It was decided to start it as from January 1st, 1935. The large number of recent hospital building schemes which had been appearing in such quick succession was partly the result of arrears which had accumulated during the war and the subsequent depression, and partly the sign of financial recovery. These extensions would all involve larger maintenance expenditure, and would require increased incomes.

THE YEAR'S FINANCES

Sir Edward Peacock, the honorary treasurer, said that it now seemed likely that the income for the year would be sufficient to cover the distribution. Legacies for 1934 amounted to more than £75,000 ; in each of the past seven years they had exceeded £58,000. A full year's income had come into the accounts from recent generous contributions to capital, notably the reversion of £136,000 under the will of the late Lord Mount-Stephen, and the gift of freehold property known as the William and Francis Radford Endowment. Lord Marshall, honorary treasurer of the League of Mercy, said that certain sources of hitherto substantial income had declined during the year, but that as the result of a special effort the league was again allotting £20,000 to the King's Fund. This made a total of £544,034 since 1899, of which £267,000 had been given since the Prince of Wales had become president of the league in 1919. At the same time the league was distributing £6,238 to extra-metropolitan hospitals, making a total since the league was founded of £167,998, and a grand total distribution of £712,032.

On December 7th an inaugural meeting of the London and Home Counties Branch of the Association of Special Libraries and Information Bureaux was held at Chatham House. Mr. H. H. Johnson was elected chairman and Miss Evelyn Atkinson honorary secretary. It was decided that the next meeting of the branch should take place at the new premises of the Royal Institute of British Architects in Portland Place towards the end of January. Further particulars may be obtained from the secretary of the association, 16, Russell Square, W.C.1.

British Medical Journal

SATURDAY, DECEMBER 22nd, 1934

RECENT RESEARCH IN BLACKWATER FEVER

Haemoglobinaemia in blackwater fever has in the past constituted a fundamental problem, not the least enigmatical aspect of which has been the small quantity of blood pigment quantitatively demonstrable. The occasional incidence of methaemoglobin has been noted by a few observers, and Ross in his recent monograph recorded it in twelve out of eighteen cases; Yorke and his colleagues found it in the plasma of two of their five cases, simultaneously demonstrating its absence from the corpuscles. Recently Fairley and Bromfield have made quantitative investigations on haemoglobinaemia in both malaria and blackwater fever, using a spectroscopic method similar to that described by Bloem. Multiple observations were recorded throughout the course of both these diseases, and, by collecting, oxalating, and centrifuging the blood in all stages under paraffin, the risk of artificial plasmolysis was reduced to a determined minimum.

In Part I of these studies[1] the blood pigments of the plasma in syphilitics experimentally infected with malaria, as well as in thirty-two natural infections of the latter disease acquired abroad, receive consideration. The conclusion reached is that blood destruction in malaria is mainly an intracellular phenomenon unaccompanied by demonstrable haemoglobinaemia, but generally associated with hyperbilirubinaemia, which varies in individual cases from 0.5 to 5.5 van den Bergh units (indirect reaction). Part II[2] deals with serial observations on the plasma of blackwater fever cases. Oxyhaemoglobin and methaemoglobin were invariably present, but when the corpuscles were washed free of plasma and lysed no methaemoglobin was liberated. Quantitative investigations revealed the unexpected fact that in both fatal and non-fatal cases methaemoglobin constituted the major portion of the total blood pigment, and that the oxyhaemoglobin content of the plasma decreased progressively as the methaemoglobin increased. In the three fatal cases of the series the maximal quantity of blood pigment estimated as the sum total of oxyhaemoglobin and methaemoglobin amounted to 3.6, 4.6, and 5.1 per cent.—a concentration regarded as sufficient to explain the phenomena of blackwater fever in terms of an intravascular haemolysis. Finally, it is pointed out that where methaemoglobin results from the action of drugs it has an intracorpuscular location, and in the absence of corpuscular haemolysis fails to appear in the urine; in this respect it differs fundamentally from the methaemoglobinaemia of blackwater fever, where the methaemoglobin arises from oxyhaemoglobin only after its escape from the corpuscle.

In Part III[3] the naked-eye characteristics of the plasma in blackwater fever are discussed: three derivatives of haemoglobin are mainly concerned—namely, oxyhaemoglobin, which imparts a red; methaemoglobin, which produces a brown; and bilirubin, which results in a bright yellow coloration. A mixture of these pigments is the rule, and the resultant colour (which is generally darkish or brownish red) depends on their relative and absolute concentrations in the plasma. Bilirubin, like the other pigments, is subject to considerable fluctuations, and varied from 7 to 88.5 van den Bergh units (indirect reaction) in individual patients. One case of blackwater fever complicated by *B. coli* cystitis proved of great interest; here the blood was chocolate-coloured and the plasma light brown. Only a small quantity of oxyhaemoglobin (0.28 per cent.) was found in the plasma, which, however, contained another pigment resembling methaemoglobin on ordinary spectroscopic examination, but differing from it in not being reduced by Stokes's reagent or ammonium sulphide; it also differed from sulphaemoglobin. It failed to appear in the urine throughout the course of the illness (though both oxyhaemoglobin and typical methaemoglobin reacting with Stokes's reagent did so) and was never found in the corpuscles, though it was demonstrated in the plasma over a period of ten days. Samples of the pigment were sent for investigation to Professor Keilin, who reported as follows: "A peculiar haemoglobin derivative with a normal prosthetic group in which the globin portion of the molecule was undoubtedly modified; the spectrum had the general appearance of methaemoglobin with the bands shifted about 60 Ängstrom units towards the short-wave end of the spectrum. Although it did not reduce with Stokes's reagent, the compound contained trivalent iron: it was easily reduced with sodium hyposulphite, and gave a typical haemochromogen (globinprotohaemochromogen). Apart from its spectroscopic resemblance to haemoglobin and its trivalent iron, it had no properties of methaemoglobin when tested with alkali, H_2O_2, H_2S, azide, etc." This new pigment, the final report on which will be awaited with much interest, appears to be some modification of methaemoglobin in which the globin portion of the molecule has undergone an irreversible change.

The intensity and duration of haemolysis also received consideration. Sometimes it remained unabated until death, the patient dying of toxaemia and renal failure at a time when the red cell count was still falling, the haemobilirubin rising, and the degree of haemoglobinuria well sustained. In others a study of the secretory rate of oxyhaemoglobin and methaemoglobin in the urine confirmed the essentially fluctuating nature of the haemoglobinuria, and supported the view that several haemolytic crises, rather than one isolated

[1] Fairley, N. H., and Bromfield, R. J.: *Trans. Roy. Soc. Trop. Med. and Hyg.*, 1933, xxvii, 377.
[2] Idem: Ibid., 1934, xxviii, 289.
[3] Idem: Ibid., 1934, xxviii, 307.

haemolysis, characterized blood destruction in these cases. Such fluctuations in haemolysis would not be anticipated were the haemolytic agent either a haemolysin or a drug given at the commencement of the illness, and as a result of these and other considerations Fairley and Bromfield put forward a new hypothesis regarding blackwater fever. In their opinion the haemolytic substance arises in chronic malignant tertian malaria from some cellular metabolic breakdown which is precipitated by quinine, plasmoquine, and possibly other factors such as chill, while its mode of action is, first, to lyse the corpuscles, and, secondly, to convert the liberated oxyhaemoglobin into methaemoglobin or the modified pigment described in their paper.

WEIL'S DISEASE

Evidence is steadily accumulating that leptospirosis, or Weil's disease, has a much greater incidence and a wider geographical distribution than was formerly recognized, and a progressively increasing number of sporadic cases of jaundice which have an occupational relationship that brings them in contact with water or slime contaminated by rats are being attributed to this cause. The infective organism, *Leptospira icterohaemorrhagiae*, which is known to be located in the kidneys of these rodents in most if not all countries where surveys have been made, reaches the exterior by way of the urine, and it is from this source that man is directly or indirectly infected.

In the October *Bulletin* of the Office International d'Hygiène Publique[1] the incidence of Weil's disease in their respective countries is reviewed in a series of articles by workers from Japan, the United States, France, Germany, and Sweden. In Japan, where Professor Inada originally isolated *L. icterohaemorrhagiae*, Weil's disease remains prevalent. Dr. M. Tsurumi points out that it may appear in epidemic or endemic form in river and swampy country or in coastal areas, but rarely in country which is high and dry. Coal miners in Japan are not infrequently affected by the disease. Its incidence varies in different years and different localities, and the total cases for 1933 equalled 1,636 ; the mortality rate was only 4.6 per cent. In the province of Ibaraki, however, the mortality during the last six years has varied between 16.9 and 29.9 per cent. In Toyama the public health authorities had been much impressed with the prophylactic value of two inoculations of a vaccine prepared from cultures of *L. icterohaemorrhagiae*, and in 1925 as many as 10,617 persons received such treatment ; no troublesome reactions ensued. Mlle B. Erber presents a report of the agglutination reaction as carried out at the Pasteur Institute, Paris, on sera from suspected cases of Weil's disease. From 1932 to 1933 the laboratory received 1,232 specimens, of which 286, or 23.1 per cent., were positive. Of 1,048 specimens collected in Paris itself 215, or 20.5 per cent., were positive, and of 184 examinations undertaken for the Department of the Seine seventy-one, or 38.6 per cent. Contact with water from rat-infested areas was the main source of infection, and certain occupations definitely involved the risk of contracting the disease. In Germany, Dr. Reiter states, occasional cases of Weil's disease have been encountered in bathers and sewer workers, and in 1933 Kister gave an account of a series of twenty-one cases from Hamburg with four deaths. Uhlenhuth and Zimmermann observed that white as well as grey rats could act as vectors. According to Dr. Olin the disease is uncommon in Sweden. It was found that 6 per cent. of rats in Stockholm harboured *L. icterohaemorrhagiae*. The report of the American delegate, Dr. H. S. Cumming, indicated that cases of infectious jaundice were rarely attributable to *L. icterohaemorrhagiae*, only ten cases having been recorded in Canada and the United States in which this organism had been demonstrated. Schüffner, who has done such outstanding work on this disease in Holland, found that during the past ten years 452 cases had occurred there, with forty-six deaths, the mortality rate being 10.2 per cent. Bathing in public baths and "water accidents" involving immersion in canals where rats abounded proved a common source of infection.

In the *British Medical Journal* of July 7th (p. 10) Hamilton Fairley described a hitherto unrecognized focus of infection among the sewer workers of London, and, by means of a clinical inquiry and serological tests undertaken by Professor Schüffner, was able to show that the disease had been endemic for at least twelve and a half years. It was discovered that labourers engaged in repairing and rebuilding old sewers were particularly affected ; among other duties their work consisted in chiselling away and removing old brickwork covered with sewer slime, and this not infrequently led to abrasions of the skin of the hands and the arms. Infected rats have long been known to abound in London sewers, and contact with resulting infected slime was regarded as the source of the disease. Buchanan (1927), in an outbreak of Weil's disease among miners in East Lothian, had previously observed that the fungal slime lining the coal pits contained leptospirae pathogenic to guinea-pigs.

In our present issue two new outbreaks are described. From Aberdeen Professor Davidson and his colleagues report a series of nineteen cases of Weil's disease chiefly among fish workers. The symptomatology was typical, and the clinical diagnosis was confirmed by means of agglutination tests, using as antigen both Weil and the Dutch East Indian strains of *L. icterohaemorrhagiae*, as well as *L. canicola*, as advocated by Professor Schüffner and his colleagues in Amsterdam, where sera from the first cases of the series were tested. The source of infection in the present outbreak is of considerable importance. The patients themselves were mainly employed in handling white fish, either as filleters and cleaners or as general distributors of raw material in rat-infested premises, the floors of which become covered with slime and offal. After depilation of the abdominal hair and experimental immersion in

[1] 1934, xxvi, No. 10, pp. 1749–1767.

water collected from floor washings and tubs, three out of twelve guinea-pigs died with jaundice, and leptospirae were demonstrated. The skin of the hands was often traumatized doing this work, so all the conditions necessary for acquiring the disease exist in this trade. The other outbreak, an account of which is given by Dr. Drew at page 1142, affected mainly Italians employed as cane cutters in the Ingham district of Queensland. Jaundice first appeared in October, 1933, and by October, 1934, some thirty cases had been put on record. In August *L. icterohaemorrhagiae* was isolated from a human source, and, later, leptospirae were discovered in the urine of rats, which showed a high incidence of infection. The cane fields were heavily infested with these rodents, and apparently the moist conditions existing after rain exerted a benign influence on the life of the leptospira, for after a prolonged spell of dry weather fresh cases ceased. In grasping the cane preparatory to cutting, the hands often become injured, and it is suggested that leptospirae may thus gain access to the tissues.

The incidence of Weil's disease in coal miners, bargemen, sewer labourers, fish workers, and cane cutters clearly indicates the necessity for regarding it from the standpoint of an occupational disease, and when it is realized that less than half the cases infected with *L. icterohaemorrhagiae* actually develop jaundice its industrial significance becomes increasingly apparent.

A MARE'S NEST IN CANCER RESEARCH

Reference was recently made in these columns[1] to a test proposed by Aron[2] said to be diagnostic of cancer. The repeated injection of an extract of the patient's urine into a rabbit was stated by this author to be followed by partial or complete disappearance of lipoids from the cortex of the adrenal; this reaction was obtained almost constantly in cases of malignant disease and never in a numerous variety of control cases. From the fact that the serum of a treated animal or of the patient himself conferred resistance to the action of the urinary extract on the adrenal Aron concluded that the active substance in the urine was a specific antigen (a departure from his original hypothesis, which only presupposed the excretion of abnormal metabolic products), and even went so far as to suggest that the antibody whose existence he claimed to have demonstrated might be used therapeutically. These extensive and dangerous assumptions were criticized in the *Journal*, and it was suggested that the nature and mechanism of the adrenal change upon which this hypothesis was built required further investigation. Under the formidable names of Roussy, Oberling, and Guérin[3] a paper has now appeared which flatly denies that the test itself has any diagnostic significance. The lipoid content of the adrenal as demonstrated by Aron's method is very variable in the normal rabbit, even within the age limits specified by Aron, and in both normal and test animals the conclusions of two different observers from sections of the adrenal frequently differed. In sixty tests with human urine negative results were frequently obtained in cases of malignant disease and positive with urine from normal subjects or sufferers from other diseases; the distribution of the results obviously bears no relation at all to the existence of malignancy. However the contradiction between Aron's and his critics' findings is to be explained, it is evident that the appearance of the rabbit's adrenal cortex is too variable to serve as a reliable index, and for the rest we may assume that it is too easy to see only what one wants to see. This incident will add to the feeling of suspicion which surrounds any new and empirical method, whether of diagnosis or of treatment, particularly in the cancer field. There are always multitudes of people who are only too eager to adopt any new method for the relief of cancer; this disease, perhaps more than others which have the reputation of being invariably fatal, produces in the patient and his relatives, and even sometimes in his medical attendant, a state which may be described as pathological credulity. Workers who value their reputation should be very sure of their ground before claiming any advance in this department of medicine which is capable of clinical application.

[1] *British Medical Journal*, July 28th, 1934, p. 176.
[2] *Presse Méd.*, 1934, xlii, 833.
[3] Ibid., 1934, xlii, 1641.

A PSYCHOTHERAPEUTIC FOLLOW-UP

A very interesting follow-up study from a psychological department is published in a recent issue of the *Journal of Mental Science*.[1] Mrs. D. H. Hardcastle, the social worker in the department of psychological medicine at Guy's Hospital, has investigated the condition of the first hundred patients seen at that department in 1931. Of these, sixty-seven were children and thirty-three were adults. There could be no selection of cases, since the clinic was part of a general hospital: all those sent had to be accepted for treatment. One of the first things noticed about the follow-up was that the visitor was afforded a warm welcome, except sometimes among the parents of mental defectives. The visitor inquired into the present condition of the symptoms for which the patient had sought help, into the general health, the social contacts, the sex life, the present occupation, attitude of family, and the patient's own interpretations of the treatment received. If there had been recovery the patient or the family was asked to what this recovery was attributed. The highest standard admitted is "much improved," as the word "cure" is considered too sweeping in an investigation of this kind. The other categories are: "improved," "unchanged," "worse," "in institutions," "not traced," "dead," and "referred but never attended." The first analysis shows that 39 per cent. of adults and 64 per cent. of children were found to be improved or much improved, while 34 per cent. of adults and 15 per cent. of children were unchanged. The greatest improvement was among those whose condition might be grouped as "affective changes," while there was no improvement in six classed as organic or mentally defective. There seems to be no relation between the number of visits to hospital and the degree of improvement, except in four cases, where intensive educational training was given by the psychologist. When the cases

[1] July, 1934, lxxx, 536.

were grouped according to age the only striking result was the high percentage of improvement in the age group 9 to 11 (87 per cent.): the number of patients in this group was, however, very small. Success in treatment was found to be more probable with children of normal intelligence, and very unlikely when the intelligence quotient was 75 or less. The greatest number of much improved patients were found among those with scholastic difficulties (67 per cent.). There appears to be very little doubt that the work is well worth the expenditure of more time and money. As this study points out, the Guy's Hospital clinic arose out of a definite demand from the community, and is being increasingly used by many kinds of local agency as well as by other departments of the hospital.

THE PARATHYROID AND URINARY CALCULI

That the urine can in some cases hold in solution quantities of uric acid which exceed by far the amounts soluble in an equal volume of water is common knowledge, and if one considers its extraordinary solvent properties it becomes clear that it must contain some substance or substances which enable the ordinary laws of solution to be transgressed. To explain such anomalies of solution it has been necessary to suppose that the urine contains substances of the nature of colloids which prevent the precipitation of certain of the urinary constituents present in supersaturated concentrations. The action and precise significance of a "protective colloid" are well known to the physical chemist, though these are perhaps not so clearly appreciated by the clinician when discussing the possible role of such a colloid in the deposition of calculi in the various sites in which they are found. Of the two classes of colloids—emulsoids and suspensoids—the latter are much more readily precipitated by solutions of electrolytes than the former—that is, for the same concentration of colloid suspensoids are precipitated by very much more dilute solutions of electrolytes. If an emulsoid is added to a suspensoid solution it is readily shown that a much greater stability is conferred on the latter. This protective or stabilizing action was known to Faraday, who demonstrated it on colloidal gold preparations. It has an interest for the practitioner in that it explains the effect of a little egg-white in preventing a massive precipitation of casein from the milk taken by the infant. In the application of these facts to biological fluids it should be kept in mind that if a substance is to be "protected" it must be in the colloidal state. The maintenance of cholesterol or bilirubin in the gall-bladder bile in such concentrations as are normally found calls for some mechanism analogous to that of colloid protection, and it is generally considered that the formation of biliary calculi is in some way due to a diminution in quantity or potency of a hypothetical biliary protective colloid. In the case of the blood very much larger amounts of, say, uric acid or calcium phosphate can be taken up into suspension than can be accounted for by mere solubility, and this phenomenon is undoubtedly due to the presence of the protective colloids, serum albumin and globulin (emulsoids). The substances thus protected or stabilized are, it must be clearly understood, kept in colloidal suspension. Now in the case of the urine the more or less generally accepted filtration-reabsorption theory offers a picture of the transformation of a non-protein glomerular filtrate of enormous volume into the relatively minute fraction of excreted urine. When filtered across the glomerular capsule the volume of fluid is easily adequate to keep all the constituents in ordinary solution, but this no longer obtains after concentration has taken place, so that it is presumably at this stage that the addition of the protective colloid occurs. Further, it must be at this stage that the state of simple solution of certain constituents changes to that of colloidal. As to the nature of the added substance and its source nothing is known. The possibility of some relation with vitamin A deficiency is suggested by the work of van Leersum, who found that diets deficient in this vitamin led to crystalline deposits in the urinary tract of laboratory animals, and the prevalence of stone in India and China may in part be explained by these findings. The importance of the parathyroids in the metabolism of calcium and phosphorus suggests the possibility of some endocrine factor in calculus formation. In a recent contribution F. H. Colby[1] reports that out of thirteen cases of removal of parathyroid tumours eight—that is, 61 per cent.—showed definite evidence of calcification in the urinary tract, six were cases of renal calculi, one of vesical calculus, and two of calcification of the renal parenchyma. Generalized osteitis fibrosa was not a marked feature in any of them, although some decalcification of bone was noted. In three of the cases the typical syndrome of renal calculus was easily recognized, but the true nature of the cases was established by the high serum calcium and low serum phosphorus (15.8 mg. Ca and 2.8 mg. P in one case). The identification of the parathyroid tumours and their surgical removal, together with appropriate treatment of the already formed calculi, prevented recurrence during a fairly long period of observation. It is, of course, difficult to be certain that recurrence will be permanently prevented, but there can be no doubt that the results are very suggestive. The authors are inclined to attribute the calculus formation to the increased calcium and diminished phosphorus excretion which accompany an active parathyroid tumour. However, parathyroid tumours cannot explain more than a small minority of cases of renal calculus, though it sets one wondering whether the majority of cases may not be associated with some functional hyperactivity of the parathyroid. Routine examination of serum calcium and phosphorus in a series of cases of renal and vesical calculi should be instructive.

NUTRITION AND THE PUBLIC HEALTH

The paper with this title by Dr. H. E. Magee and the subsequent discussion at the health congress of the Royal Sanitary Institute at Bristol in July, 1934, are now available in full,[2] and the main impression is a striking plea for a broader physiological outlook by public health authorities. As Dr. Magee points out, bacteriology and pathology, which supplied the knowledge responsibl for the most outstanding successes of public health work in the past, seemed at one time as if they would dominate and dictate the activities of the public health services. Now, especially as

[1] *Surg., Gynecol. and Obstet.*, August, 1934, p. 210.
[2] *Journ. Royal Sanitary Inst.*, 1934, lv.

regards nutrition, there is an urgent need for harnessing the results of physiology to public health activities. The newer knowledge of nutrition, especially concerned with the mineral elements and the vitamins, stops short at pointing out that both are essential for health. Field work by public health authorities on the minimum requirements of many of the inorganic elements and of the vitamins is regarded by Dr. Magee as of great importance. "It should be possible," he states, "by dietary and sociological studies, and by co-operation with practitioners, to obtain data which would give some information on the part played by nutrition in the aetiology of diseased conditions." Another important aspect was also touched upon concerning the well-recognized factors of ignorance and prejudice in preventing that improvement in the general state of nutrition of the people which all are agreed is desirable. Income, as several speakers urged, may well be the fundamental factor in proper nutrition, but education through the public health service could do much to interpret physiological facts into the language of everyday life.

PATENTED LENSES

Among the many admirable activities carried on by our brother society, the American Medical Association, there is one that has high value—the reports of the Committee on Standardization of Instruments and Drugs. We know the work of this committee mostly through its examination of drugs and the claim of their vendors. The committee has adopted an article by Dr. Alfred Cowan of Philadelphia on the claims made for "patented lenses."[1] There has been a recent outburst of startling claims made for what may be termed "wide-angle lenses"—that is, lenses which by their curvature give a uniform value in all their parts, notwithstanding the wide movements of the eyes behind them. The report states that those having any acquaintance with the literature of geometric optics know that practically nothing of what has been stated is new. Deeply curved or meniscus lenses were mentioned by Kepler as early as 1604 and recommended by Hertel in 1716. Toric lenses were ground by Anton Wagner in Philadelphia fifty years ago. Although the theory of wide-angle lenses has been familiar for a great many years, certain manufacturers imply in their advertisements that they have made a new discovery, and that they, and only they, have the ideal ophthalmic lenses—corrected to the very edge for both the error of marginal focal power and the astigmatism of oblique pencils, even in bifocals. No one knows better than they that these claims are without substance. What is most glaring is that while no two of the many patented forms are alike, each is claimed to be perfect. In point of fact, a lens of this kind is a compromise at best; any one is just about as good as another—and no more comfortable to the average wearer Clinically it is known that chromatic aberration, distortion, and curvature, in ordinary ophthalmic lenses, are not noticeable enough to cause discomfort to the wearer. Reflections from the surfaces are sometimes annoying, but can usually be remedied by proper adjustment. The spherical aberration that must be corrected in a photographic lens in order to produce a clear image to the edge of the plate does not apply to an ophthalmic lens. A clear image is distinctly seen only over an extremely small area at the fovea; and therefore it is here and nowhere else that a clear image must be formed; imaged, sharply or not, on any other part of the retina, objects appear blurred. For this narrow pencil of light, necessary to form the foveal image, only a small portion of the correcting lens is used at one time. Dr. Cowan's paper gives in detail the evidence for these conclusions, and it is clear that neither the extravagant claims made for the patented lenses nor their high prices are warranted.

[1] *Journ. Amer. Med. Assoc.*, November 3rd, 1934, p. 1377.

NEXT YEAR'S BUDGET

In a recent speech the Chancellor of the Exchequer, Mr. Neville Chamberlain, is reported to have uttered a warning against too confident an expectation that there will be reductions of taxation next year. He pointed to new expenditures, and suggested that there would have to be "very large increases of revenue . . . before anything is left over for the relief of the taxpayer in the next Budget." A warning that new commitments of expenditure necessarily involve taxation is often salutary, and excessive optimism sometimes meets with painful disappointment. The Chancellor's admonitions can be fully justified on these grounds, but we hope they will not be justified by the event. Last year he was able to give up a substantial part of what the income tax would have yielded on the 1933–4 basis, and was faced with the choice of two alternatives, or the possibility of combining both. He could either reduce the standard rate of tax below the 5s. level, or increase the personal allowances to something like their former amounts. There was not enough margin to do both, and to divide the relief between the two would have been less spectacular than a reduction of 6d. in the standard rate, and therefore would have had less psychological effect. The result was that the standard rate was reduced and the personal allowances were not increased. We thought then, and still think, that the choice was the right one, but only on the assumption that there was a reasonable prospect of something being done in 1935 to relieve the smaller taxpayers of the burden placed on them when the old personal allowances were reduced. On the basis of a 4s. 6d. standard rate that reduction costs a married taxpayer anything up to £22 10s. in extra tax. That additional sum is the same whether his income is £500, £1,000, or £2,000, though it is an accepted principle of our income tax code that the smaller the income the greater the burden of any fixed payment. It may be too much to expect a complete return to the old scale of allowances next year, but a long step in that direction will certainly be due, if not overdue. The psychological factor has had its turn; next year it is the turn of the ordinary taxpayer, who is still bearing the burden of an addition which never applied to, or at least was not felt by, the large financial concerns and wealthy taxpayers.

Messages received from Colombo this week report a very widespread epidemic of malaria in Ceylon, which began in the North-Western Province at the beginning of October and is said to have already affected 500,000 people.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice

THE TREATMENT OF PNEUMONIA

BY

W. H. WYNN, M.D., M.Sc., F.R.C.P.

Pneumonia is an acute medical emergency, and the patient's fate is to a large extent decided during the first forty-eight hours ; but too often a diagnosis is not made until consolidation is apparent, which may not be for two or three days. During the preconsolidation stage, when the circulation through the lung is not yet impeded and toxaemia is slight, much can be done to control the infection by the timely use of a vaccine or serum. We should think in terms of immunity: a patient recovers from pneumonia by producing sufficient immune bodies. It is not possible to pick out beforehand those who will succeed in this, and 20 to 30 per cent. fail entirely. By early specific treatment a reduction of the mortality to 5 per cent. is within the bounds of possibility.

General Measures

Poor patients in crowded homes with unskilled attendants should be removed to hospital as quickly as possible. The modern ambulance service is so efficient that this can be done with little disturbance. With patients treated at home, day and night nurses should be obtained and precise instructions written down.

From the first, absolute rest in bed must be strictly enjoined and the nurse's main duty is by thoroughness and skill to reduce the patient's exertions to a minimum and to create a calm atmosphere with an absence of fuss. The bed should be in the middle of the room and the windows widely open. Fresh air is a fine tonic, but must be used with common sense, and the patient should be guarded against icy draughts or glaring sunlight. One garment should be worn, opening down the middle to allow easy access for examination and nursing attentions. During the initial chilly stage abundant bedclothes and hot-water bottles are required, but thereafter one sheet and a blanket should be ample. Gamgee jackets are relics of the days when pneumonia was thought to be due to cold and therefore to be exorcised by heat. Sponging with lukewarm water should be done as a routine night and morning and when the temperature taken four-hourly exceeds 102.5° F.

At least four pints of water should be taken in some form during the twenty-four hours. Glucose is the most easily assimilated food, and of this half a pound should be dissolved in a quart of water flavoured with the juice of lemon or orange. It can be taken freely at any time, and many patients will consume up to one pound a day. Milk need not exceed one and a half pints taken in amounts of five ounces four-hourly, and two grains of sodium citrate should be added to each ounce. To two or three of the feeds coffee or tea can be added. If additional food is desired, it can be given as albumen water: the whites of two or three eggs in a pint of water with a little meat extract added to flavour. Meat extracts in any quantity are undesirable because of the small amount of nutritive material and the large quantity of extractives. Water, plain or with added fruit juices, can be taken in small quantities *ad lib.*

The mouth should be wiped out after each feed with a rag moistened with a weak watery antiseptic, liq. sodii carbolatis diluted with twenty volumes of water or listerine diluted 1 in 3. Washes containing glycerin should not be employed. An occasional use of a nasal spray with liquid paraffin or chloretone inhalant is comforting. Aperients should be avoided ; they increase the fluidity of the bowel contents and favour fermentation and tympanitic distension. If the patient when first seen has had no action during the previous twenty-four hours, a soap-and-water enema should be given. During the active stage no enema should be given unless there is distension or a feeling of fullness in the rectum. A simple diaphoretic mixture should be taken every four hours:

℞	Pot. cit.	gr. xx
	Liq. ammon. acetat.	ʒ ij
	Syrup. aurant.	ʒ j
	Aq.	ad ʒ j

Specific Treatment

When the patient is seen within the first three days a vaccine or serum should be given. A vaccine has the great advantage that it can be carried in the bag and is immediately available. It must be an active one of known antigenic power, made as far as possible from young primary cultures. The one I use contains equal numbers of pneumococci, streptococci, and *B. influenzae* (P.S.I. vaccine). While it is desirable that it should consist of the various strains, it is more important that it should be made from virulent cultures. For an adult the dose is 200 millions of each organism—that is, 600 millions in all. Larger doses can be given at this stage, as the patient is not yet sensitized. Children should have proportionately smaller doses, but even at 12 months 20 millions of each organism should be given. The object is to stimulate the production of non-specific antibodies in adequate amount ; the specific effect is not seen for some days. If the temperature does not fall after the first injection it can be repeated every twenty-four hours until three doses have been administered. When such doses are injected on the first day of the illness, in the majority of cases the temperature falls rapidly during the next twenty-four hours, with a corresponding improvement in the general condition. With each day's delay such rapid defervescence is less easily obtained. When cases are not treated until after the third day the circulation through the affected part is interrupted, and toxins are fixed in vital tissues ; little can then be expected of specific treatment, whose aim is to prevent not cure toxic symptoms.

Serum Therapy

There are at present many difficulties in the way of a widespread use of serum in general practice. The employment of concentrated anti-pneumococcus serum has a similar effect to a vaccine when given early. It is effective against infections with Type I pneumococcus and to a less extent with Type II. These types cause two-thirds of lobar pneumonias, but in recent years typical lobar pneumonia has been less common than a

mixed infection bronchopneumonia; so that, roughly speaking, serum is available for only about one-third of all pneumonias. If it is to be used economically the type of infection must be determined. Typing is not easily carried out for patients treated at home, and even in well-equipped hospitals there may be a delay of twenty-four hours. Sputum for typing may be absent in the early stages. Serum must be injected intravenously, and repeated injections require considerable dexterity. The cost is considerable. It would seem wise, therefore, at present to restrict its employment in private practice for patients seen within the first three days who already have considerable toxaemia. To such cases 20,000 units (10 c.cm.) of polyvalent serum should be administered at once. The serum is warmed to blood heat and injected slowly through a fine needle into a vein at the elbow. Sputum should then be sent for typing, and if Type I or II is present 20,000 units of Type I or Type II serum respectively should be given every six hours up to a maximum, if necessary, of 120,000 units. Unpleasant symptoms such as rigors, anaphylactic shock, and respiratory distress may occur, but are usually relieved by the subcutaneous injection of 1 c.cm. of 1 in 1,000 adrenaline chloride solution. Serum should not be prescribed for allergic subjects or for elderly arteriosclerotics.

Symptomatic Treatment

For the relief of pleuritic pain a linseed poultice or cataplasma kaolini is generally used. It should be applied only when there is pain, and to the back or sides of the chest, not over the front. The weight of a poultice is not inconsiderable, and the exertion of raising it forty times a minute is not one a seriously ill patient should undertake. Of all methods of relieving pain the introduction of 300 or 400 c.cm. of oxygen between the layers of the pleura is the most certain, but it requires experience and the necessary apparatus. The patient not only has pain but mental anxiety and restlessness, and for these there should, in most cases, be no hesitation in giving an opiate. Ten grains of Dover's powder in one of the doses of the saline mixture will often suffice. Morphine sulphate 1/4 grain is more effective. In lobar pneumonia this dose can be repeated if necessary for three or four nights. Contraindications to its use are the presence of much bronchial secretion—as in many cases of influenzal bronchopneumonia—cyanosis, and a tendency to meteorism.

With sleeplessness without pain it is usually waste of time to give ordinary hypnotics such as medinal or dial. The following is more useful:

℞	Pot. brom.	gr. xxx
	Chloral.	gr. xv
	Syrup. aurant.	ʒ ss
	Aq.	ad ʒ j

Or paraldehyde in doses of 1 or 2 drachms by mouth, for example:

℞	Paraldehydi	ʒ ij
	Ext. glycyrrhiz. liq.	ʒ ij
	Syrup.	ʒ j
	Aq.	ad ʒ ij

The unpleasant taste can be avoided if 3 drachms are given per rectum in four ounces of starch emulsion. With active delirium morphine in repeated doses may be needed, and in the most severe cases hyoscine hydrobromide 1/100 grain in addition. This latter drug has a bad reputation, but my own experience of it has been fortunate. Paraldehyde in doses up to half an ounce may succeed when morphine has failed or is contraindicated. Expectorants are not required in lobar pneumonia, but in influenzal bronchopneumonia, when sputum is abundant and the tubes blocked, ammonium carbonate should be given in doses of 5 grains four-hourly, increasing if necessary to 10 grains hourly for a few doses. The requisite dose should be dissolved in two drachms of water and given in a cupful of milk to avoid nausea.

Treatment of Circulatory Failure

Circulatory failure in pneumonia is compounded of direct toxic action upon the myocardium, vasomotor failure from action upon the centre, and dilatation of capillaries. Though much can be done by early specific treatment, absolute rest, fresh air, and glucose to prevent failure, our resources are slender when it occurs. The best way of helping the heart is to feed it, and the best foods are glucose and oxygen. At the slightest sign of cyanosis oxygen should be administered continuously. It is futile to give it for so many minutes in each hour, or when the nurse thinks fit. Apart from the oxygen tent the only method of value is intranasal. A No. 10 catheter is passed through the nose until the tip touches the pharyngeal wall, when it is withdrawn slightly. If a calibrated reducing valve is on the cylinder two litres a minute should be delivered. Otherwise the oxygen should be passed through water in a Woulfe's bottle at a rate just so fast that the bubbles cannot be counted. Adrenaline is of great value. It augments and accelerates the heart's contraction, constricts blood vessels, and raises blood pressure. It is the only drug which acts upon the poisoned heart. Five to ten minims of adrenaline chloride solution (1 in 1,000) should be injected subcutaneously every four hours, increasing to two-hourly if necessary. Pituitrin stimulates and contracts the capillaries and small arterioles. It is of value in peripheral failure in doses of 1/2 to 1 c.cm. six-hourly.

Digitalis and its allies should not be prescribed, neither early with the idea of preventing heart failure nor when failure has occurred. It adds another poison to the heart, does not slow the febrile pulse, and has no action upon the peripheral failure. Carefully controlled statistics relating to hundreds of cases showed an increased mortality of 7.7 per cent. in the digitalis-treated cases. Even in cases with auricular fibrillation digitalis gave a higher mortality. Alcohol may be of service in the early stage as a sedative and to help sleep in an anxious patient, but its routine use as so much brandy or whisky every four hours or so is strongly to be deprecated. After absorption it has no direct action upon the heart, but it will cause a dilatation of the blood vessels of the skin, and therefore a smaller amount of blood will flow through the internal organs. The skin in pneumonia is already hot and flushed, and there is no obvious indication for more flushing or restriction of the internal blood supply. Alcohol is not a cardiac tonic or a stimulant, but a depressant, and if called by its right name it would not so often be employed. With alcoholic patients it is customary to give it, but I have not found an increased delirium by withholding it in such cases. Statistics reveal an increased mortality with its use. Camphor, coramine, cardiazol, and similar substances injected hypodermically act as irritants, reflexly stimulating the medullary centre. They have no direct action on the heart, and are of no great value in serious heart failure.

It must be recognized that the present high mortality from pneumonia will be reduced not by treating poisoned organs incapable of response but by early diagnosis and prompt measures to prevent intoxication. Expectant treatment in the early stages too often means harmful drugging in the later.

PHARMACOLOGY AND NERVE ENDINGS

FIRST DIXON MEMORIAL LECTURE
BY SIR HENRY DALE

The first lecture in therapeutics and pharmacology in memory of Professor Walter Ernest Dixon of Cambridge was delivered by Sir HENRY DALE, F.R.S., in the Barnes Hall of the Royal Society of Medicine on December 11th. The chair was taken by Professor J. H. BURN, president of the Section of Therapeutics and Pharmacology, and the proceedings were opened by Dr. ROBERT HUTCHISON, President of the Society, who expressed the pleasure with which the Society had accepted from the organizing committee the trusteeship of the sum collected to endow the lecture. Professor Dixon was highly esteemed in that Society, and they felt that his splendid scientific work deserved commemoration.

Sir WILLIAM WILLCOX, chairman of the organizing committee, said that Professor Dixon, who passed away on August 16th, 1931, was one of the most distinguished pharmacologists of the day. In addition to his great scientific qualities, he was extraordinarily human. The speaker had heard Cambridge undergraduates declare that they would rather go to a lecture by Dixon than to a musical comedy, but the lectures imparted scientific material of the highest kind. Dixon was altogether a most attractive personality, a true friend, loved and respected by all who knew him. After his death the examiners in pharmacology at Cambridge talked over the question of a memorial, and went to see Mrs. Dixon, who was in favour of the establishment of a memorial lecture. Eventually a fund was collected amounting to between £700 and £800, and this was handed over to the Royal Society of Medicine for the foundation of a biennial lecture on some subject in which Dixon had been interested. Therapeutics and pharmacology had been rather neglected from the point of view of lectureships, though Edinburgh had had the Cameron lectureship for some years. The subscribers to the fund included a large number of students. The Society of Apothecaries subscribed handsomely, as did the Pharmaceutical Society. The British Medical Association was not permitted under its constitution to make such donations, but it had perpetuated Dixon's memory in another way by the foundation of a scholarship. Sir William Willcox ended by introducing the first lecturer, Sir Henry Dale, whom he described as one of the greatest biochemists in this country.

THE SCIENTIFIC CAREER OF W. E. DIXON

Sir HENRY DALE began by suggesting that Dixon's memory could best be honoured by considering some new and progressive phase of activity in the field of research and teaching which received so strong an impulse from his life and work. It would be a poor tribute to the memory of any man of science merely to recall at intervals the state of knowledge during his lifetime, or even newly to assess the value of each part of the harvest of discovery which fell to his own reaping. Far better to study some new and interesting growth from the ground where he dropped the seed, or, it might have been, only prepared the soil for later sowing. But with the loss of their friend still fresh in the memory, they could not be content on this first occasion to pay only an impersonal tribute. He was still remembered among them as a vivid and inspiring personality, who, more than any other, was responsible for the awakening in England of interest in pharmacology as a progressive science. Dixon went to Cambridge in 1899, and he was still there, as reader in pharmacology, at the time of his death, thirty-two years later. Sir Henry Dale said that he himself just missed the direct contact with him there, for Dixon went to Cambridge as he was about to leave, but from his immediate juniors he soon heard of the new life which had been breathed into pharmacology in the university, where the subject could now be studied, no longer in terms of traditional materia medica and empirical therapeutics, but as a living body of experimental science, closely linked with physiology.

The attraction which he had for young workers was a part of Dixon's charming and generous personality. His kindliness and robust humour endeared him to students and colleagues alike. He had real gifts as a raconteur, and his simple and vivid presentation of scientific matter made him an effective popular lecturer, and gave authority to his opinions far beyond the circle of those having expert knowledge of the subject. The subjects on which he worked and wrote had a wide variety. He had an almost exuberant interest in any new line of knowledge touching on pharmacology, and a desire to share in its exploration, and his conception of the scope of pharmacology tended to expand well beyond the study of drugs and their action, and to include any procedure finding application in therapeutics.

The lecturer dwelt upon Dixon's work with Brodie on the physiology and pharmacology of the bronchioles, which seemed to have provided a starting-point for the development of one of his predominant pharmacological interests. It was this work, he thought, which first brought vividly to his notice the remarkable resemblance between the actions of certain alkaloids and those of the autonomic nerves. With Brodie he reached the conclusion that adrenaline acted on sympathetic nerve endings.

THE AUTONOMIC NERVOUS SYSTEM

The suggestion was first made by Elliott that autonomic nerves transmitted their effects by releasing at their endings specific substances which reproduced their action. This worker suggested that the resemblance between the effects of sympathetic nerves and those of adrenaline might mean that sympathetic impulses, on arriving at the nerve endings, released small quantities of adrenaline, or something like it, in immediate relation to the effector cells, which would then give the same responses as to adrenaline artificially applied. Dixon saw that if this were a true conception an analogous mechanism would almost certainly be used by parasympathetic nerves, and he pictured the substance transmitting their effects as something like muscarine. Dr. Dale showed a slide of Dixon's, illustrating what the latter held to be experimental evidence of its release when the vagus nerve was stimulated. It was now known that the vagus transmitter was not muscarine, but an extremely unstable ester of choline, and free choline was probably the substance responsible for the effects which Dixon observed. Dixon appeared to have been discouraged by the scepticism with which his evidence was received, but there was no doubt that he had grasped a true conception, with characteristic conviction and enthusiasm, though the evidence which really established it came many years later, from a much simpler type of experiment.

It was at the annual meeting of the British Medical Association in Toronto in 1906 that Dixon made the first mention of his heart–vagus experiments, and at the same meeting Hunt and Taveau described the intense activity of acetylcholine. (Both papers appeared in the same issue of the *British Medical Journal*, 1906, ii, 1807 and 1788.) Nobody at the time suspected any thread of connexion between the observations presented in two entirely independent communications. Sir Henry Dale himself made a thorough investigation of the actions of acetylcholine in 1914, but another fifteen years had to pass before the substance was found occurring in an animal organ in such quantity as to enable its isolation and

chemical identification to be made. This was done by Dale and Dudley in 1929 (*Journ. of Physiol.*, lxviii, 97).

THE CHEMICAL TRANSMISSION OF NERVE IMPULSES

The lecturer next described the work of Otto Loewi, who established by a simple experiment the transmission of the effects of autonomic nerve impulses by the peripheral release of specific chemical stimulants, and said that it was now generally admitted that parasympathetic effects were so transmitted by release of acetylcholine and sympathetic effects by the release of a substance related to adrenaline. The detailed evidence for these two kinds of chemical transmission of autonomic effects had been frequently reviewed. More recent evidence indicated that a chemical mechanism of this kind also effected the transmission of nervous activity at the synapses in peripheral autonomic ganglia and at the motor nerve endings on voluntary muscle fibres.

Feeling the need of terms to describe nerve fibres, or their impulses, in terms of a chemical function, which could no longer be regarded as corresponding to their anatomical origin, he (Sir Henry Dale) had suggested the term "cholinergic" to describe those which transmitted their action by release of acetylcholine, and "adrenergic," those which employed a substance resembling adrenaline. He thought it no longer possible to doubt that the liberation of a small quantity of acetylcholine when a preganglionic impulse arrived at a synapse played an essential part in the transmission of the excitation to the autonomic ganglion cell, and that the post-ganglionic impulse was essentially a separate physiological event. The preganglionic fibres and their impulses might be classed as "cholinergic," though the process by which their effects were transmitted to the ganglion cells differed widely in detail from that by which post-ganglionic parasympathetic impulses used acetylcholine to produce their modifying actions on the spontaneous activities of plain muscle and gland cells.

Sir Henry Dale asked his audience to consider the bearing upon all this of data, long available, which displayed the functional similarities and differences between different fibres of the peripheral nervous system by the method of regeneration after artificial cross-suture of nerves. He referred in particular to a series of papers published by Langley and Anderson between 1897 and 1904. Their work could be summarized in the statement that any cholinergic fibre would functionally replace any other cholinergic fibre, and that any adrenergic fibre would replace any other adrenergic fibre, but that neither could assume the function of the other.

REVISION OF PHARMACOLOGICAL CONCEPTIONS

The general conception of the mode of transmission of the effects of nerve impulses which was even now taking shape would obviously entail some revision of pharmacological conceptions and terminology. It had no longer any scientific meaning to say that acetylcholine and adrenaline reproduced the effects of parasympathetic and true sympathetic nerves, because they acted on the respective types of nerve endings. It was truer to say that parasympathetic nerve impulses reproduced the peripheral effects of acetylcholine, because, when they arrived at the nerve endings, they liberated that substance in relation to the effector cells; and the same was true of sympathetic nerve impulses and adrenaline, with the still necessary reservation as to the chemical identity of the transmitter—namely, that it was still open to question whether it was adrenaline itself. In either case the action of the chemical substance must be on the effector cells and not on the nerve endings. When atropine or ergotoxine produced its specific paralysis it did so by rendering the effector cell specifically insensitive to acetylcholine or to adrenaline. Similar conceptions, *mutatis mutandis*, applied to the actions of acetylcholine on ganglion cells and striated muscle fibres, and to the annulment of those actions with blockage of the corresponding nervous excitations by nicotine and curare respectively. It was still necessary to account for the fact that when a substance like acetylcholine was artificially applied the effector cells responding to its action were predominantly those in relation to which it was normally liberated as the transmitter of nerve impulses. It was similarly difficult to trace more than a general chemical similarity between adrenaline and some of the substances which shared, in varying degrees, its selective action. He doubted whether the use of such terms as "myoneural junctions" or "receptive substances" to describe hypothetical components of the effector cells, to which their selective responses might be attributed, would serve any longer to clarify the issue.

PROBLEMS YET AWAITING SOLUTION

As to the manner in which the nerve impulse on reaching the nerve ending caused the chemical transmitter of its action to appear, the evidence was meagre as yet, and not wholly consistent. The latest results supported the view that the transmitter was not newly formed by synthesis as each impulse arrived, but held in some inactivating and protective complex from which the nerve impulse released it, and from which it was easily separated by ordinary methods of chemical extraction. In the one case yet investigated, by Engelhart (1931), this "depot" was dependent for its maintenance on the integrity of the nerve endings, and disappeared or became depleted when the nerve fibres degenerated. By the interpretations given to the earlier evidence this disappearance might be taken to mean that the "depot" belonged to the nerve ending, but it might merely mean that its maintenance was dependent on the arrival of nerve impulses at a normal rate, and that its depletion with nerve degeneration was comparable to an atrophy of disuse. On either conception it seemed possible to give a clearer interpretation to the actions of the only two specifically stimulant bases for which an action on nerve endings appeared to be really supported by evidence. One of these cases was that of eserine, in connexion with which Anderson, nearly thirty years ago, recorded certain experiments showing that the normally potent constrictor effect of eserine disappeared entirely with degeneration of the post-ganglionic fibres. To-day Sir Henry Dale thought that the effect of eserine might be more reasonably attributed to the accumulation of acetylcholine, the liberation of which, by the play of impulses in post-ganglionic fibres, was normally balanced by the destructive action of the cholinesterase, which eserine inhibited. The other case was that of tyramine, certain sympathomimetic actions of which had been found to disappear with nerve degeneration and under the action of cocaine. Tyramine might act by liberating the transmitter from the depot, cease to act when this was depleted, and act again when it was replenished; and the same might be true of ephedrine.

In conclusion, Sir Henry Dale said that no nearer approach had been made to the fundamental pharmacological problem why a particular type of chemical structure, or several unrelated types, should be associated with a specific action on particular types of reactive cell. The newer evidence merely exposed the nature of the problem and cleared the ground for eventual attack. He could picture the eager interest with which Dixon would have welcomed this clarification. As pharmacology approached one of its fundamental tasks it would sadly miss his fertility in ideas and the stimulus of his buoyant optimism.

VOTE OF THANKS

Professor J. H. BURN, in proposing a vote of thanks to Sir Henry Dale, expressed astonishment at the progress which had been made in this pharmacological field. Even within the last twelve or eighteen months a very big step forward had been taken in respect of the fundamental facts of pharmacology, and the whole terminology was being revised. Since the time of Langley and Anderson (the beginning of the century) there had been no such important development as that which began with Loewi's work in 1921, and which had made astonishing progress during the last year or two.

REGISTRATION OF OSTEOPATHS BILL

LORD MOYNIHAN'S SPEECH

In the House of Lords, on December 11th, Viscount Elibank moved the second reading of the Registration and Regulation of Osteopaths Bill. This motion was carried by 35 votes to 20, and the Bill was referred to a Select Committee, with full power to call witnesses. A report of the debate, from our Parliamentary Correspondent, appeared in the *Journal* of December 15th (p. 1132). We print below the full text of Lord Moynihan's speech in moving the rejection of the Bill.

REASONS FOR REJECTION

It is to me a matter of no little regret that I feel myself compelled to oppose a Bill introduced by my noble friend Lord Elibank. I do not forget that when, a shrinking and timorous novice, I had the audacity to introduce a Bill to your Lordships' House, the fact that the Bill passed its third reading was due in part to the invaluable help and wise counsel of the noble Lord in special Committee. But, if I may be permitted to say so, I fear that the noble Viscount has not fully perceived the implications, still less foreseen the irreparable calamity that would result if your Lordships gave your assent to this measure. My objections come from two quarters.

LEGAL ASPECTS

In the first place the Bill involves a negation of all the principles already embodied in the Medical Act of 1858. Before this Bill, if passed by Parliament, could become effective this Act would surely have to be repealed. This Bill would defeat the intention and effect of the Medical Acts, which through the *Medical Register* provide a clear line of discrimination between those who have, and those who have not, passed through the recognized medical curriculum. The relevant purpose of this Act is the protection of the public from the ignorant and dangerous attentions of those who have undergone no adequate training or any training in the sciences upon which medicine is based, who know little or nothing of the normal structure of the human body by dissection, of the morbid changes appearing in disease, of the proper or disordered functions of organs, or of that multitude of scientifically discovered and scientifically tested truths upon which the clinical work of physicians and surgeons is founded. The Medical Act of 1858 is primarily an Act for the safeguarding of the public ; and this Bill seeks to set aside all the carefully constructed substantial defence which time, circumstance, and opportunity have so frequently shown to be necessary, and to substitute a very frail protection and simulacrum. If by some miracle of perversity the Legislature should accept such a Bill as this, the claim now put forward would assuredly not end with osteopaths. If one particular "theory" of medicine were granted recognition contrary to the Medical Act of 1858 (Sections 23 and 28) a precedent would be created for the official recognition of any other cults which cared to include a smattering of medical subjects in the curriculum. There is nothing in the Medical Act to prevent any man, qualified or unqualified, from practising osteopathy. Many of your Lordships are far more competent than I to express a considered opinion upon this first point I raise—namely, that acceptance of this Bill would require that the Medical Act at present in force, by which, so far as legislation can secure it, the safety of the public is protected, should be repealed.

PROFESSIONAL ASPECTS

The second objection I venture to offer concerns not the legal, but the professional aspect of this Bill. Its acceptance would involve a denial of, and would hold up to obloquy, the whole scientific basis of medicine. If there is one country in the world which should regard itself as the custodian, protector, and guardian of scientific medicine, it is our own ; for it was in this country that modern scientific medicine had birth, and it was in this country that the greatest discoveries, foundation stones, and landmarks in the history of medicine were made. The claim may justly be made that medicine is at once parent and nurse of all science. For the methods by which all science advances are those first introduced, or in their origins most successfully applied and established, by practitioners of medicine.

The inductive method of logic was created not by Aristotle, nor by Socrates, nor by any philosopher, but by Hippocrates, of whose ancient and serious diligence Bacon reminds us: the full value and right application and appreciation of the experimental method we owe to Galen. It is by these two methods, and by these alone, that all scientific advance takes place. After Galen the methods used by him and by Hippocrates were submerged in the reign of authority which lasted for over a thousand years, a dark, sterile period in which denial of the teaching of Hippocrates was not only disloyal, but heretical, and might, and not seldom did, cost a man his life, as unhappy Servetus, discoverer of the pulmonary circulation, learnt at the guilty hands of Calvin in 1553. The first gleam of light was seen in Italy, in Salerno, oldest of her universities, and so far as medicine was concerned in the wealthier University of Bologna and in Padua, famous for great teachers.

THE FOUNDATIONS OF SCIENTIFIC MEDICINE

It was the magic of Fabricius of Padua which attracted our own William Harvey to that university, where he undertook those researches which ended in his discovery of the circulation of the blood a little over three centuries ago. That discovery is the one indestructible foundation upon which all scientific medicine is based ; and Harvey was empowered to make it by bringing together once again the Hippocratic and Galenic methods of inductive inquiry, comparison, generalization, and experimental proof. But until John Hunter, the patron saint of the Royal College of Surgeons of England, created with the help of Morgagni the science of pathological anatomy, little was known of those structural changes in organs which enabled men to correlate them with the symptoms of disease to which they give rise. The lot of the patient was, however, little improved, in surgical matters at least, until immortal Lister, a member of your Lordships' House, basing himself upon Pasteur (already medallist of our Royal Society) and his work on fermentation, attributed infection in wounds to the propagation of living organisms within the wound, and so made possible the immense, almost incredible, advances that have taken place not in surgery alone, but in medicine also, since the recognition of the part played in general disease by focal infection. It is chiefly upon the work of Harvey, Hunter, and Lister that the science and art of medicine have been founded: three great Englishmen. That is my reason for asserting that we in this country are in special degree the custodians of scientific medicine.

OSTEOPATHY A DENIAL OF SCIENTIFIC MEDICINE

Osteopathy has not only no connexion with the main stem of scientific medicine: it is a complete denial of the truth of scientific medicine. If there be any truth in the fanciful and fallacious basis of osteopathy, there is none in the true science of medicine. The two systems do not run side by side, they are not complementary or mutually supporting. They are in direct and hostile opposition. If one is true the other must be false. If osteopathy is true the foundations of scientific medicine are not well and truly laid ; then scientific physiology created by Harvey, pathological anatomy as founded by John Hunter, our knowledge of its infection and its relation

to disease which we owe to Pasteur and Lister, are false—even contemptible. The osteopath walks by faith and not by sight. When he speaks of the "lesion" he means something that neither chemical examination, radiological examination, nor post-mortem examination reveals to those trained in the practice of these methods. In place of knowledge gained in all the world by biologists, physiologists, pathologists, and bacteriologists we are asked to accept a cult fabricated not after arduous research, but springing up spontaneously by a process of serendipity in the mind of a layman in America, where it grew apace, though denied and derided from the day of its birth to this very moment by all scientific opinion in that country.

I do not deny that the problem presented to-day may contain elements of obscurity. Some of your Lorships may have heard, or even in your own persons may have experienced, a sense of benefit from treatment at the hands of an osteopath. I do not deny that such things are possible, nor do I deny that medicine has been slow to incorporate in its methods the art of those outside the fold—even, indeed, at times of those within the fold. Medicine is always slow to accept new methods because a heavy responsibility rests upon it to ensure that, within the limits of contemporary human knowledge, only the best, well-tried, and well-proven methods shall find a place in its orthodox practice. But to-day it cannot be denied that orthopaedic surgery embraces all the sound methods hitherto employed empirically either by bonesetter, manipulative surgeon, osteopath, or other "natural" practitioner. This we owe to the genius of my late dear friend Robert Jones, the greatest orthopaedic surgeon the world has known. He was the nephew and pupil of H. O. Thomas, whose name is for ever associated with the Thomas splint, which gave such splendid service during the war. Thomas was himself the son of a bonesetter, with whom he was in partnership before the Medical Act of 1858 rendered this illegal. Thomas was indeed the descendant of generations of bonesetters who flourished in Wales and settled at last in Liverpool. All the quick-fingered skill of the bonesetter was brought into medicine by Robert Jones, and there, after trial and great improvement and more rational application, has at last found a place and haven; and robbed of those perils which to my knowledge made it (though at times apparently successful) not seldom a cause of death in the hands of the untrained and unscientific bonesetter.

MISCHIEVOUS FEATURES OF THE BILL

I do not now venture to waste your Lordships' time in detailed criticism of this Bill. If opportunity ever came I think I could make it clear to the point of conviction: that osteopathy receives no clear definition in this Bill (for to say that what an osteopath may practise connotes the meaning of osteopathy is meaningless, and has many undesirable and even dangerous repercussions); that the Bill grants to foreign osteopaths the right to practise in this country, though the standards of other countries are sometimes grotesque; that reciprocity with other countries would almost certainly be denied; that the suggested training in medical subjects is too short to give a competence at all comparable with that of the general medical practitioner to-day; that if in future there is to be a medical training it must be equal for all those who are to practise medicine; that a shorter training would surely attract an inferior type of practitioner; that the Bill would create two standards of entry into the profession of healing, debasing the standard at a time when the medical profession is taking thought to exalt it; that the right to sign death certificates or to perform operations should in the public interest on no account be granted to those who have not, after passing through the recognized medical curriculum, been licensed by the General Medical Council, whose authority is conferred through the Medical Acts by Parliament; that Clause 8 (1), if strictly interpreted, would prevent the ordinary practitioner of medicine from using his own methods, which are being annexed by the osteopath; and that this clause would confer upon osteopathy a monopoly now denied to medicine.

Finally, I may point out that if osteopaths at long last are realizing that a formal medical training is essential before they may successfully practise their art, there is nothing to prevent them from passing through the present medical curriculum, and supplementing it in any way considered proper. This is the method followed by ophthalmologists, laryngologists, those who practise in public health, and others within the fold of orthodox medicine.

CONCLUSION

I do not desire to deal in anything but the most cursory manner with details of this Bill. It is to its principles that I offer most serious and most confident objection. It embodies an endeavour to destroy the Hippocratic unity of medicine, to foist upon the public, unaware of the danger, a spurious science which sets aside all the accumulated wisdom and expert practice of centuries. It seeks legislative authority for a "theory" of medicine that has in no country proved its validity, and is the derision of all competent and experienced minds.

MATERNAL MORTALITY

DEPUTATION TO THE MINISTER

Sir Hilton Young, the Minister of Health, received a deputation on December 11th from the Maternal Mortality Committee. The deputation, which was introduced by Mrs. H. J. Tennant, was representative of a large number of women's organizations, and of all three political parties.

Mrs. Tennant said the deputation represented over 3,000,000 women, and was the outcome of a meeting on the question of maternal mortality held on November 6th. Its object was to urge a wider provision of first-rate medical and midwifery services and the fuller maintenance and development of the maternity and child welfare services. Mrs. Barton said that malnutrition, though not a primary cause of maternal mortality, was a contributory factor. She feared that the Exchequer's block-grant system was less effective in stimulating local authorities than the former percentage grants. Mrs. Anderson referred to the recent inquiry into the death of Mrs. Taylor in Manchester. She feared that the facts brought to light by this inquiry had shaken public confidence.

Lady Barrett dealt with the question of ante-natal care and the desirability of appointing at ante-natal centres doctors who were also practising midwifery. She made reference to the necessity of improving the training of doctors and midwives. Miss Gregory said that midwives should receive a two- or three-years' course in a first-class hospital; she emphasized the dangers of employing "handy" women. Lady Limerick welcomed the announcement by the Minister of the proposed inquiries in areas in which the maternal mortality rate was abnormally high, and called for the establishment by local authorities of more gynaecological clinics. Mrs. Alderton held that county councils should be the maternity and child welfare authorities for all areas except large urban areas. She referred to the difficulties of establishing a satisfactory service in remote rural areas. Lady Denman said that at the last Conference on Maternal Mortality there had been a marked change in the attitude of the delegates; there was evidence of growing impatience at the failure to reduce the maternal mortality rate.

THE MINISTER'S REPLY

The Minister said that the problem of maternal mortality was one giving him, as it had given his predecessors, grave concern. Despite the improvement in the general mortality rate, there had as yet been no improvement in the maternal mortality rate. He was grateful to the deputation for its co-operation, and he had listened with interest to the helpful speeches that had been made. The maternity and child welfare services of local authorities were being steadily developed. No financial check had been placed upon them, and they were not affected by the transfer from the percentage to the block-grant system. When the transfer was made an additional sum of £5,000,000 was provided by the Exchequer for the development of local authorities' services, and the maternity and child welfare service had been recognized as a first charge upon that sum.

Some of the speakers had suggested that malnutrition was a cause of the high maternal death rate. There was no evidence, however, to show that there was any close relation between malnutrition and a high maternal mortality. Of the

actual deaths examined at least one-half occurred among well-to-do people, and it was significant that the maternal death rate for 1933 in such a depressed area as Durham was no higher than the rate in the relatively prosperous county of Middlesex. Nevertheless, the conditions in the depressed areas were undoubtedly such as to give rise to anxiety, and the position was receiving the close attention of the administration. In particular local authorities had been urged to make, in appropriate cases, full use of their powers to supply milk and other foods to expectant and nursing mothers.

The Government was at present engaged in co-operation with the local authorities in a strenuous and continuous effort to improve the maternity and child welfare services throughout the country. Fresh impetus had been given in October last to the development of the maternity services by local authorities, and there would be no relaxation until the maternal mortality rate had been reduced. Particular attention was being directed to: (1) improving the ante-natal service; (2) ensuring that the services of a trained midwife were available for all confinements; (3) securing the provision of maternity beds for complicated cases and for patients with unsuitable home conditions, such beds to be associated, where practicable, with general hospitals, preferably in small units readily supervised, and for which prompt specialist services for serious cases could be made available; (4) providing facilities for the adequate isolation and separate nursing of cases of puerperal sepsis; and (5) obtaining the services of a consultant for doctors needing assistance in difficult or complicated cases. In addition to this general work special inquiries were about to be made in those areas in which the maternal mortality rate had been found to be abnormally high. Further action would be based on the result of these investigations. Careful consideration would be given to the useful and practical suggestions which had been made by the deputation.

THE MEDICO-LEGAL SOCIETY

ANNUAL DINNER

The annual dinner of the Medico-Legal Society at the Holborn Restaurant, London, on December 14th, with Sir BERNARD SPILSBURY presiding, was attended by two of H.M. judges, various other notable persons in the legal world, and the presidents of the principal medical bodies, including Dr. S. Watson Smith, President of the British Medical Association.

Mr. Justice HUMPHREYS, in proposing "Medicine and the Law," paid a noteworthy tribute to the general practitioner. His own most frequent contact with the medical profession, he said, was through the general practitioner, and "I take off my hat to him. When it comes to deciding between his evidence and that of a gentleman who may be quite eminent, but who has not seen the patient, knows nothing about the patient, is probably unacquainted with the treatment which has been administered to the patient, and tells the jury, or, less frequently, tells me that the man who has attended that patient, probably for years, is quite wrong, wrong in his diagnosis and wrong in his ideas, my inclination is to invite the jury to pay more attention to the evidence of the man who has seen and attended that particular person than to the theories of anybody else, however eminent. The general practitioner, the family doctor, is a man whom I have always regarded as immensely overworked and grossly underpaid. He is expected to—and, good fellow that he is, he does—respond to any call to get up in the night and go and see any old woman who has a stomach ache, even though he knows the patient and knows what he will find when he gets there. That is the general practitioner, and when he gives evidence I feel that he has quite sufficient knowledge of medicine and surgery to enable him to give the evidence the jury will understand and to have treated the patient in a way which gave the best possible opportunity of recovery. The man I like most among all the doctors is the general practitioner, and to him I think we owe as great a debt as we do to the heads of the profession or to the research worker."

Lord HORDER, in responding to the toast, commented on the fact that while patients never seemed to doubt the competence and devotion of their medical advisers, the profession as a whole, or groups within it, did not occupy in public esteem anything corresponding to the esteem felt for the individual doctor. Perhaps it was so in all professions. Lord Horder went on to speak on the question of the osteopath. It was difficult for him to conceive how it was possible to erect a single therapeutic measure into a system of medicine, to eliminate the art of diagnosis, and the basis of all medicine, which was pathology, and proceed straight to treatment. He wondered what was going to happen to the British public if for diagnosis and the pathology which underlay diagnosis there was substituted one single method of treatment, however important, and if the man who had only this one method of treatment at his command was to be elevated to the position of a registered medical practitioner. Still, if the public wanted it, let it be "tried out." He did not think they, as doctors, should protest too much against this sort of thing. The more they protested the more would osteopaths consider themselves martyrs, and martyrdom was valuable propaganda. Lord Horder concluded with the remark that the time was ripe for an institute in which research and teaching in medicine and law, in so far as the two subjects interacted, could be undertaken. He hoped that the link between the two professions would shortly be rendered more effective in that respect.

Mr. Justice SWIFT, in proposing "The Medico-Legal Society," paid a tribute to Sir Bernard Spilsbury, whom he described as the ideal expert witness, a man of great knowledge, great industry, and great power of expression. "I have met in my time witnesses of all kinds and degrees, but in the class of honest expert witnesses Sir Bernard is a bright and scintillating star. No case of first-class importance has been completed without his assistance, and the public has the utmost confidence in his opinion." Mr. Justice Swift added that he had that day been speaking with Mr. Justice Avory about Sir Bernard, and his brother judge had remarked, "Some day—some day he may be found to be wrong."

Sir BERNARD SPILSBURY spoke of the loss which the society had sustained in the death of Lord Riddell, who became a member in 1922, vice-president in 1927, and president from 1930 to 1933. Lord Riddell was full of projects for making the society better known, and his contributions to the discussions were apt, witty, and informed with wide knowledge. The membership of the society now stood at about 330. All who did medico-legal work appreciated the difficulties which the present isolation imposed upon them. He welcomed the establishment by the Government of a police college, also the appointment of a specially trained medical man to carry out scientific investigation in such a college, and he hoped that there would presently appear an organization which would embrace workers in medical jurisprudence, giving them the opportunity of teaching and research.

Dr. ROBERT HUTCHISON, in replying for "The Guests," avowed his personal liking for lawyers and his early hankerings after a legal career. He recalled the remark of one indignant lady who had brought her son to him during the war, when he confessed his inability to discover any impediment to military service, "Call yourself a doctor! You look just like a lawyer." Looking at many genial faces in the present company, he felt that that must be a compliment.

The Mental After Care Association, which exists to help those who have suffered from mental trouble, earnestly appeals for funds. This year over 3,000 people have been helped, and the extension of the work to early care for incipient cases of mental disorder urgently requires financial support, the results of the work being most encouraging. Contributions should be sent to the secretary, Miss E. D. Vickers, Church House, Westminster, S.W.1.

Scotland

Edinburgh Chair of Clinical Medicine

The retirement of Professor Edwin Bramwell from the chair of clinical medicine in the University of Edinburgh has been announced. Professor Bramwell is the eldest son of the late Sir Byrom Bramwell, the distinguished neurologist, whose works on *Intracranial Tumours* and *Diseases of the Spinal Cord* contributed much to the elucidation of nervous phenomena at the end of last century. Professor Edwin Bramwell was born in 1873, and after an early education at Cheltenham studied medicine at Edinburgh University and graduated M.B., C.M. in 1896. In 1902 he was appointed assistant physician to Leith Hospital and in 1907 an assistant physician to the Royal Infirmary of Edinburgh. He joined the Royal Colleges of Physicians of Edinburgh and London as a Member in 1900, becoming a Fellow of the Edinburgh College in 1903, and of the London College in 1907. He took the M.D. of Edinburgh in 1919. He played a considerable part in the inauguration of the post-graduate courses in medicine which have been held at Edinburgh since 1906. In 1919 he was appointed lecturer on neurology in the University, and in 1922 he was made Moncrieff Arnott professor of clinical medicine. He delivered the Morison Lectures to the Royal College of Physicians of Edinburgh in 1917. His varied contributions to the literature of neurology include "Myasthenia Gravis" in the *Encyclopaedia Medica*, 1901, "Epilepsy" in the *Index of Treatment*, and "Spinal Tumours" in Allbutt's *System of Medicine*, second edition.

The chair of clinical medicine was instituted in 1913 out of the funds derived from a legacy bequeathed by James Moncrieff Arnott, a former graduate of the university. A scheme has been mooted for merging this chair with that of systematic medicine when opportunity offers. Dr. Edwin Matthew, who was due to retire from the post of physician to the Royal Infirmary at the age limit on December 12th, 1934, has meantime been continued in office in order to carry on the duties of the clinical medicine chair. Professor Matthew is a native of Aberdeen and graduated M.A. at that University in 1889. After a medical course at Edinburgh University he graduated M.B., C.M. with first-class honours in 1897, proceeding to the degree of M.D. and receiving a gold medal for his thesis in 1908. As a student he gained a Vans Dunlop and the Ettles scholarships. He joined the Royal College of Physicians of Edinburgh as a Member in 1902, and became a Fellow in 1906. For some twenty years he was assistant physician and physician at Leith Hospital, and for twenty-five years assistant physician and physician to the Royal Infirmary, Edinburgh. He has acted as examiner in medicine at the Universities of Aberdeen and St. Andrews, and since May, 1933, has been a member of the General Medical Council, representing the Royal College of Physicians of Edinburgh.

The winter graduation ceremony of Edinburgh University was held on December 14th, when Principal Sir Thomas Holland conferred the degree of Doctor of Medicine upon fourteen graduates and those of Bachelor of Medicine and Bachelor of Surgery upon twenty-nine graduands.

Maternal Mortality

Professor J. M. Munro Kerr, in addressing the annual meeting of the Scottish Branch of the Queen's Institute of District Nursing at Glasgow on December 14th, expressed the opinion that a greater measure of co-operation between the different agencies interested in the problem of maternal care was the best method for reducing the present figures of maternal mortality. Lord Provost A. B. Swan, who presided at the meeting, spoke of the highly successful results in treatment which the Institute of District Nursing obtained. The general community should recognize that they owed much to this Institute for the improvement in the health conditions of the people. Lady Kay Muir, who submitted the report, said that since the Local Government (Scotland) Act, 1929, came into operation, there had been a tendency for some of the grants made by former parish councils in aid of nursing work to be reduced or stopped. It would be regrettable if this became general, and it was hoped that local authorities would recognize the value of the work of attending persons in receipt of public assistance. Professor Munro Kerr said that much could be accomplished to bring maternal mortality down to an irreducible minimum, and in this the Queen's Institute was setting a splendid example. Geographical and social conditions, as well as the character of the population, affected this minimum, but the chief factor was the type and organization of the maternity service in any locality. At the present time maternal mortality was much the same as it was fifty years ago, and it was a matter for question why this should be so when there were so many willing workers, and when the causes of mortality were now known. The chief reason was that agencies concerned with the maternal mortality were not fully co-ordinated. These agencies were the obstetric specialists, general practitioners, midwives, nurses, medical officers of health, health visitors, and various hospitals and ante-natal clinics. He would emphasize the necessity for greater co-operation with expectant mothers themselves, who should realize that they ought to place themselves under supervision early in pregnancy. He believed in the provision of municipal midwives in large cities, a scheme which had been tried out already in Bradford. In the rural and semi-rural areas the Queen's Institute might undertake the routine maternity services, and if the work of the institute were correlated with that of ante-natal clinics, doctors, and specialists, there would be some prospect of improvement. In the report of the institute the statement is made that out of 86,546 births registered in Scotland during 1933 Queen's nurses attended 14,211. In 2,197 of these the nurses attended as midwives, and in the remainder as maternity nurses. In the births attended generally in Scotland otherwise than by Queen's nurses the maternal death rate was 6.5 per 1,000 births, while in the cases that had been attended by Queen's nurses the death rate was 2.8 per 1,000 births. The total assets of the Scottish branch of the institute now amount to £126,598, an increase during the past year of £7,201. It was also reported that the Gardens Scheme in Scotland, inaugurated four years ago for raising funds for the institute, had for three years running realized over £5,000, and in the present year the figure was £800 higher than that of any previous year.

Edinburgh Public Medical Service

The Public Medical Service instituted in Edinburgh two months ago has met with a large measure of success. Over two-thirds of the doctors in general practice in the city have joined the service, and patients are enrolling at the rate of 500 per week. Warm support is also being received from chemists, employers of labour, prominent social organizations, and leaders of public opinion. The wives of insured persons, particularly, have been quick to realize that benefits similar to those of the National Health Insurance Scheme can be obtained by the payment of fourpence per week per member of the family, and are eager to enrol their children. Subscriptions are paid through collectors to a central office, but in all other

respects the patients deal directly with their own doctor. A similar public medical service was inaugurated in the county of Midlothian last year, and another is about to be established in Ayrshire.

Welfare of the Blind: Advisory Committee

The Department of Health for Scotland has appointed the Scottish Advisory Committee on the Welfare of the Blind for a further term of office. The committee is representative of local authorities in Scotland and of organizations and agencies for the blind, and includes a number of persons appointed directly by the department. The personnel is as follows: Mr. J. M. Rusk (chairman), Mr. Mackenzie S. Shaw (vice-chairman), Mr. C. H. W. G. Anderson, Mr. James Balfour, Mr. William Bell, Mr. William Edgar, Mr. W. R. Halliday, Mrs. A. A. Kennedy, Mr. James Leiper, Mr. C. G. Lothian, Dr. George Mackay, Mr. W. H. Blyth Martin, Lord Polwarth, Mr. Adair Robb, Mr. James Ross, and Mr. Bertram Talbot. Mr. Rusk becomes chairman in place of the late Sir William Reid, and Mr. Mackenzie Shaw assumes the office formerly held by the Rev. Dr. Thomas Burns, who is unable to accept reappointment on grounds of health.

Bangour Hospital Extension

An extension of the nurses' home at the Bangour Mental Hospital of the Edinburgh Corporation was inaugurated on December 3rd by Lady Thomson, wife of the Lord Provost of Edinburgh. The extension provides accommodation for sixty-four nurses, the home now housing the entire nursing staff of 139 members. It also includes a lecture room and rooms for practical work and for reading and writing. The extension has cost some £11,000. Lady Thomson said that a great change had come over the mental hospitals in this country during the last half-century, largely due to the increasing extent to which female nurses had been employed. With few exceptions, acute cases, male as well as female, were now under the care of female nurses, and the results had amply justified what was at first regarded as a very doubtful experiment. The influence of the trained mental nurse had done more than any other single measure to transform the mental hospital of to-day into a place of care and healing.

Ireland

Bicentenary of Mercer's Hospital, Dublin

At a meeting in connexion with the bicentenary of Mercer's Hospital the question of amalgamation of the hospital with Sir Patrick Dun's and the Royal City of Dublin Hospitals was discussed. Dr. R. J. Rowlette said it had been realized by the governors and medical staff alike that a small hospital of the size of Mercer's, containing 100 to 200 beds, was not the most suitable to give efficient results to-day. The era of the small hospital had passed, and to secure thoroughly efficient service hospitals of a larger unit must be considered. While economy was necessary, it was not an essential question. There was under discussion a scheme for the amalgamation of Mercer's, Sir Patrick Dun's, and the Royal City of Dublin Hospitals in such a way as to have a hospital unit of about 400 to 500 beds, instead of three units of 100 to 150 beds each. The project had received the warm support of the chairman of the Hospitals Commission, which advised the Minister for Local Government and Public Health as to the disposal of the funds accruing from the sweepstakes. He hoped that the details of the scheme would be such as to get the approval of the Commission, and that the Minister would consider the scheme with the greatest sympathy when it came before him. Dr. T. P. Kirkpatrick read a paper on "The Foundation and Ancient History of the Hospital," in which he went back to the twelfth century, when there was a Chapel of St. Stephen on the site of Mercer's Hospital. They had now, he stated, nine great hospitals in Dublin, and three of these owed their foundation to women: Mary Mercer, Madame Steevens, and Mary Aikenhead. Sir John Lumsden, in an address on the recent history of the hospital, said that during the early part of the eighteenth century certain auxiliary or private medical schools existed in Dublin, the certificates of which were accepted by the licensing bodies—Kirby's (1832), the Carmichael School of Surgery (1835), and the Ledwich School (1836) in Peter Street, the property later being acquired by the Adelaide Hospital. The number of students attending at Mercer's during the 'seventies and 'eighties was considerable, as it was one of the chief teaching hospitals, and a large proportion of Ledwich School students came there. In those days Mercer's had some outstanding men on the staff: the Ledwichs, the great surgeon Butcher (of butcher-saw renown), Dr. Mason, Mr. Nixon, and Mr. Stamer O'Grady.

Poor Law Medical Officers' Salaries

The substance of a letter from Dr. T. F. Armstrong, honorary secretary to the County Wexford Poor Law Medical Officers' Society, to the County Wexford Health Board is as follows. At a special meeting of his society the establishment of a State medical service was unanimously recommended, as the Poor Law medical system, designed over eighty years ago, was not adapted to present needs. Meanwhile some amelioration of the conditions was necessary if a full satisfactory service was to be maintained for the purpose of affording medical relief on the extended scale. Applications for increases of salaries might with every justification be made, but the society, recognizing all interests, asked only for two concessions, which were admittedly most reasonable and moderate: (1) that all salaries should be placed on a scale with fair increments, the maximum being reached in not more than ten years; and (2) that a substantial contribution should be made towards travelling expenses which were incurred in performing official duties. The average dispensary medical officer's salary was subject to deductions of 50 per cent. and more for such expenses, and as they increased the real salary diminished until, during influenza epidemics, there was no real remuneration whatever. The dispensary medical officers requested: (1) that the present maximum of £300 be attained in ten years by annual increments of £10; and (2) that an allowance of £75 be granted as a contribution towards travelling expenses. The hospital medical officers applied for the following scales: county surgeon, £500, and annual increments of £30 to £800; county home medical officer, £200, increasing by £10 to £300; fever hospital medical officer, £200, increasing by £12 10s. to £300; district hospital medical officer, Gorey scale salary to remain as at present. The scale fixed by sealed order a few years ago proved most unsatisfactory in the following respects: (*a*) the scale was £50 lower than in the neighbouring counties; (*b*) the annual increments were only £5, although the Department of Local Government and Public Health had itself suggested £10 increments as being most suitable; (*c*) it was contrary to the usual practice of the Department to fix a scale which was lower than existing scales in the county—for example, in Gorey Union area the scale was £50 higher, and the maximum was reached in five years; and (*d*) the scale lowered the initial salaries in certain areas and removed the privileges conferred by transfer to these areas.

Diphtheria in Cork City

Dr. Saunders, medical officer of health, in a report on the health of Cork City in October, called attention to the continued and undue mortality from diphtheria. The fall in the fatality rate had not yet kept pace with the fall in incidence of this disease ; the latter was now much less than it was four or five years ago, when immunization was begun. Two deaths occurred during the month, which brought the total for the present year up to fifteen, one more than the total for 1933. None of these deaths occurred among immunized children, yet many parents still persisted in refusing to have their children protected. While the number of cases was much fewer than it used to be, the type of the disease was more severe and the risk of death greater. If every child in the city under 10 were immunized, Dr. Saunders added, the disease would disappear completely.

County Medical Officers of Health in Leitrim and Longford

Dr. McCormack, medical inspector of the Department of Local Government and Public Health, recently attended Leitrim County Council to urge the appointment of a medical officer of health. The question had been postponed from time to time. A suggestion of the Department that Leitrim and Longford should appoint a joint medical officer of health did not find favour. The Council expressed the wish that the positions of tuberculosis medical officer and county medical officer of health should be amalgamated, and that Dr. Reynolds, tuberculosis medical officer, should be appointed to the joint position. Dr. McCormack said the resolution could not be considered, since the filling of the appointment would be for the Appointments Commission.

England and Wales

Society of Apothecaries

The ancient hall of the Society of Apothecaries of London was the scene on December 11th of the Yeomanry Dinner, when the Master, Sir George Buchanan, supported by the Senior and Junior Wardens, Sir William Willcox and Dr. J. S. Fairbairn, presided over a company of about one hundred. Among the guests were Sir E. Hilton Young, Minister of Health, Lieut.-General J. A. Hartigan, D.G. of the Army Medical Services, Lord Horder, President of the Medical Society of London, Dr. E. K. Le Fleming, Chairman of Council of the British Medical Association, the presidents of various kindred societies, and the deans of London medical schools. Sir William Willcox introduced Dr. W. Langdon Brown, Regius Professor of Physic at Cambridge University, to receive the honorary freedom of the Society, and made appropriate reference to his distinguished career in medicine. The freedom, with the scroll enclosed in a specially designed casket, was presented by the Master. Professor Langdon Brown expressed his thanks for the high honour conferred upon him, and his pleasure in being introduced by such an old friend as Sir William Willcox. He could not help feeling that the honour had come to him less on personal grounds than in recognition of the ancient office he was privileged to hold. Cambridge University and the Society of Apothecaries were both ancient foundations, but both had always shown a faculty of adapting themselves to the needs of the time. Sir Hilton Young, in proposing the health of the Society, said that it would be impossible for any occupant of his office to stand before the present company without bearing testimony to the distinguished record of public service of the Master, Sir George Buchanan. The Society itself, after a long and comparatively obscure record as a City guild, had taken up a number of fresh activities in the public interest. It had shown a facility for rendering service where service was most needed. He referred in particular to its institution a few years ago of the diploma of Master of Midwifery, designed to assist public health authorities and others in the selection of practitioners who had made a special study of ante-natal care, obstetrics, and infant welfare. Another noteworthy achievement of recent date was the Society's register of biophysical assistants. Above all, he greeted the Society as one of those important bodies working effectively for the maintenance of the standards and traditions of the medical profession. The Master, in responding, said that the Society had two sides—that of a City guild and that of a medical corporation. As a guild it had done good service, but as a medical corporation its service to the community had been in some respects outstanding. It had initiated certain lines of action, and later had surrendered control when the work became too big for its compass. At one time there was no register of persons licensed to practise save one kept by the Society of Apothecaries. Mr. Arthur Greenwood, M.P., a former Minister of Health and an honorary freeman of the Society, proposed the health of the guests, and also acclaimed the Society as an ancient body able to adapt itself to new demands. Brief responses were made by General Hartigan and by Mr. W. Girling Ball, dean of the medical college, St. Bartholomew's Hospital.

Establishment of Nutrition Clinics for London School Children

The Education Committee of the London County Council on December 4th announced to the Council its proposals for the medical and dental treatment of school children for 1935–6. These arrangements are the first to be put forward by the Labour majority, and they include the provision of additional treatment centres, dental inspection, and nutriment for children under treatment, the establishment of nutrition clinics, and the introduction of new methods for the early treatment of ear, nose, and throat defects. It is proposed to establish five nutrition centres in London in the programme of educational developments for 1935–8. Cases will be referred to the centres by school doctors, teachers, and care committees, and each child will have a thorough medical examination to ascertain whether its physical condition may be ascribed to dietetic deficiency. If so, advice will be given to the parents, and, where possible, nutritives and tonics, such as cod-liver oil, malt, and iron, will be provided. Additional facilities are to be available in certain districts for the treatment of eye defects. Operations for the removal of enlarged tonsils or adenoids are decreasing in number, but there are a great many children with conditions of the nose and ears which, owing to lack of early care, often result in an operation becoming inevitable. One type of preventive treatment is known as diastolization, and can be undertaken by specially trained nurses under the supervision of an aurist. Arrangements are being made for fourteen such cases to be treated per week, or about 600 a year ; each case will need about twelve treatments. Further provision for the care of minor ailments is to be made, together with facilities at the minor ailments centres for the administration of nutritives and tonics in special cases when ordered by the physicians. As for dental treatment, it is proposed to arrange for the extension of dental inspection and treatment facilities in order that all children in the schools shall be inspected by the dental surgeons once a year, and the consequential treatment

given at the centres. At present the general rule is for the dental surgeons to inspect all children, with the exception of entrants, children of ages 7 and 11 years, and leavers—that is, those age groups subjected to routine inspection by the school doctors. To enable all children to be inspected annually will necessitate a total of thirty-six additional inspection sessions and 105 additional treatment sessions a week. The extra cost when the full programme is established will amount to about £12,000 a year, but the development is to be gradual and spread over three years, the age groups 7 to 8 years being added to the dental inspections throughout London for the first year, 1935–6. Arrangements at three selected centres for orthodontic treatment, as an experiment for six months, have been approved ; the scheme will be reviewed in March next, when it will be possible to consider its extension. Observation centres for the early discovery and treatment of children suffering from rheumatic defects have proved of considerable value, and additional provision is being made in five centres. Additional centres are also to be established for stammering children.

Vital Statistics for 1933

The principal features of Part I (Medical Tables) of the Registrar-General's statistical review for 1933, which is now on sale at H.M. Stationery Office, price 6s., are as follows: The number of births registered in the year was 580,413, giving a rate of 14.4 per 1,000 persons living. This rate is 0.9 below that for 1932, hitherto the lowest recorded, and constitutes a new low record. The death rate was 12.3 per 1,000 persons living, 0.3 above the rate for 1932 (the same as that for 1931) but 0.9 above that for 1930. The rate for 1930 was, however, the lowest ever recorded, this being attributed to the exceptionally mild weather in the first quarter of that year. The higher rate for 1933 is almost wholly occasioned by an excess in the first quarter of the year, the rates for the other three quarters showing very little variation. Infant mortality was similarly affected, and the deaths of children under 1 year numbered 64 per 1,000 live births as against 65 in 1932, 66 in 1931, and 60 in 1930 ; 1930 is, however, the only year showing a lower infant mortality than 1933. The death rate from cancer was 1,526 per million persons living as against 1,510 in 1932. If, however, allowance is made for differences in the age constitution of the population the comparative mortality from cancer shows a slight decrease. Tuberculosis again furnished a new low record of 824 per million living. Puerperal sepsis caused the deaths of 1.75 women per 1,000 live and stillbirths, 0.2 more than the rate for 1932 but 0.09 less than 1930. "Other accidents of pregnancy and childbirth" showed a rate of 2.57 per 1,000 live and stillbirths, compared with 2.49 in 1932, 2.36 in 1931, and 2.38 in 1930. Road accidents due to mechanical vehicles were responsible for 5,934 deaths. The figures for the last five years were 5,196, 5,752, 6,342, 5,892, and 5,671 respectively.

Old Epsomians at Dinner

The fifty-seventh annual meeting and dinner of the Old Epsomian Club was held at the Hotel Great Central on December 13th, under the presidency of Mr. R. M. Handfield-Jones. Among the guests were Lord Leverhulme, the newly elected president of Epsom College, Sir John Broadbent, vice-chairman of the College council, the Rev. A. C. Powell, head master, Lord Horder, and Professor T. B. Johnston. The projection of a cinematograph film showing events at the College on Founder's Day formed an interesting interlude. In response to the toast of his health Mr. Handfield-Jones mentioned that in the year he left Epsom—1910—he attended his first Old Epsomian dinner, when there were forty present, and the total club membership was 300 ; that evening there were 140 at the tables, and the membership had risen to 1,100. Epsom was flourishing exceedingly, thanks largely to Sir Raymond Crawfurd, its chairman of council, who had guided it through the years of reconstruction. But it was not going to rest on its laurels. On certain matters the friends of Epsom who had studied public school administration felt strongly. As soon as it was financially possible the College should be divorced from the benevolent side. Epsom was being hindered from taking its proper place in the scholastic world because of the millstone of benevolence around its neck. So long as there were 125 local secretaries up and down the country appealing for money it would never rid itself of that incubus. It must not be imagined for a moment that anyone was suggesting that the benevolence should cease, but only that it should be separated. The public school education of the young could not go hand in hand with a system of benevolence to the aged ; such benevolence was already being carried to a large extent by invested funds, and it was important that it should be separated from the school. On an actuarial basis it would take between twelve and fifteen years to establish a fund which would carry all their foundationerships (the fifty-six scholars, sons of medical practitioners, who were boarded, educated, and clothed free of all cost), and when that became possible they had at disposal at Epsom everything a public school needed to place it among the first twelve public schools in England. It was purely a question of policy and the founding of a fund. The head master, in reply to the toast of "Floreat Epsomia," said that the wishes which Mr. Handfield-Jones had forcibly expressed would meet with great acclamation from all concerned for the scholastic reputation of Epsom. He reviewed the record of the year in study and sports. Dr. A. B. Howitt, M.P., proposed the health of the guests, to which Lord Leverhulme responded. A response was also made by Professor T. B. Johnston, who said that Epsom had links with all the medical schools, and particularly with Guy's, thanks to Sir William Hale-White, the honorary treasurer at Epsom, and to the existence in the medical school of a society of Old Epsomians.

Reports of Societies

MENTAL HYGIENE: PREVENTIVE MEASURES IN CHILDHOOD

Dr. DAVID FORSYTH, the president, took the chair at a meeting of the Section of Psychiatry of the Royal Society of Medicine, held on December 11th, and Dr. SUSAN ISAACS opened a discussion on the above subject.

Dealing with the years from birth to 4 or 5, Dr. Isaacs laid stress on the necessity for preliminary study of the facts of genetic psychology, including the unconscious mental life. The advice given to mothers and nurses had, she said, too long consisted of a set of ready-made rules, chiefly emphasizing the value of training in regular habits. On the other hand, some recent American attempts to apply psycho-analytic knowledge to mental hygiene seemed to be based rather naïvely on the facts of infantile sexuality alone. The practical advice these offered was mostly directed to avoiding stimulation and reducing the amount of libidinal gratification which the child might get in suckling, or in being tended, or in direct expressions of affection. The advice was based on a Spartan ideal of the relation between mother and child, the aim of which was to avoid fixations. Fixations, however, were far more likely to be the outcome of anxiety resulting from the aggressive wishes connected with the particular libidinal nucleus. Each of the pregenital libidinal zones, particularly the biting phase of oral

sexuality and the successive phases of anal erotism, had characteristic aggressive wishes connected with it, involving specific modes of attack and defence and specific fantasies. The pressure of these primitive forms of desire and feeling in the child from birth onwards was enormous, and his chief task was not to acquire a series of habits, but to learn to control and express his instinctual cravings towards his parent. As a first defence against the primary anxiety of oral frustration and aggression during the first six months of life, the infant took into his psyche two distinct imagos of the mother: the good, which yielded the bliss of satisfaction in suckling and removed painful stimuli; and the bad, which was created out of the experiences of pain and frustration and the child's own aggression, did not differ in character from the primitive wish-self of the child, and was endowed with all his own sadism. This internalized "bad mother" gave rise to a vast anxiety. The child suffered fantastic terrors of being bitten, cut, wetted, or burned in talionic punishment for what he had wished to do to the mother. This anxiety led to an imperative need to project the sadistic superego on to an external parent. In his obstinacies and tantrums the child tested his fantasies of inner danger by real action against the external parents, so as to gain constant reassurance of their power to control him without hurting him, and of their love and willingness to protect him. In his pleasure-seeking habits, such as thumb-sucking or masturbation, the child sought proof of the goodness of those parts of his own body which had been associated with aggressive fantasies. In his learning, his manifest affections, and his growing skills he gradually built up a more stable belief in the good parents inside himself, and in his own power of creating and making good, and brought this belief closer to reality.

A Regime of Reassurance

The problem of early mental hygiene was therefore to help the child to find satisfactory ways out of the anxious emotional conflicts of the first three or four years. The most general aim should be to discover a technique for giving parents and nurses responsible knowledge without increasing their guilt and anxiety. They should have a positive understanding and a wide comparative knowledge of the various aspects of development, to give them a sense of security and a correct perspective in regard to their own children. A regular routine, together with reliable and consistent modes of handling the child, avoided undue frustration, and gave him a mild external control in a form which he could understand. A temperate and appropriate authority reassured him against the first primitive parent-self within his own mind. If, however, his elders merely gave him a doctrinaire freedom to do what he liked, they yielded him over to the severest of authorities—the primitive mother-imago made in the image of the primitive infant-self.

It was also necessary to recognize individual deviations, and the fact that children could never be made to fit an exact pattern. Moreover, one could not give a disturbed mother greater help than by assuring her that the majority of children manifested emotional difficulties in the early years, and that these as a rule passed away if the general conditions of the child's life were kept satisfactory by providing adequately for the skills, interests, and friendships normal to his age. A very important consideration was the wisdom of avoiding coincident stresses. If, for example, there was a death at the time a child was teething; if he was to have an operation just after he had been naughty; if the new baby arrived after he had been specially dirty or aggressive, his difficulties would be increased to the breaking-point. It was, for example, unhelpful to send a child without warning to a nursery school within three days of the birth of a new baby. Again, the weaning of a boy of 10 months had been started a fortnight before the family moved from one country to another, was continued over a week's journey and a sea voyage of some days, and completed within a fortnight of the arrival. The child had immediately developed a most violent anxiety and aggression, screaming for hours on end in the night. Weaning should never be allowed to coincide with any such other important change of circumstances, and if such a coincidence was unavoidable a prophylatic analysis was highly desirable. Not only hysteria and obsession, but also psychosis and delinquency could be diagnosed in the child under 5 years, and early therapy had here to be recognized as an essential part of mental hygiene. The number of children who needed actual treatment by psycho-analysis was not small.

Dr. William Moodie spoke from experience at the London Child Guidance Clinic of over 2,300 cases during the last five years, amplified by the examination of about 2,000 more children committed to the Remand Home of the London County Council. The manifestations of mental breakdown had been very diverse. The child might have caused disturbance to the community by violence, habitual stealing, disobedience, temper, or bullying. He might have truanted from school or fallen into the hands of the police. The trouble might have been within himself; he might have been nervous, fearful, shy, sensitive, unable to hold his own with others, or abnormally imaginative; or he might have shown some special symptom such as nail-biting, thumb-sucking, food fads, or bed-wetting. Many of the children had been referred because of school failure in one of its many forms, such as lack of concentration, so-called "word-blindness," and inability to calculate or remember. The delinquents had all been sent to the Remand Home through the juvenile courts. Many had been committed for stealing, gang activities, house-breaking, or bag-snatching. A few had been there because they were beyond control, and some because they had been found "wandering without visible means of support and lodging in the open air." In the clinic group signs were frequently found which suggested the neuroses and psychoneuroses of adults. About 8 per cent. were mentally defective, and some children suggested early psychoses. Delinquents, on the other hand, did not give the same suggestion of neurosis, but seemed mostly to be ordinary children, somewhat dull in intelligence. (Perhaps this factor had accounted for their capture.) Whereas about 20 per cent. of the clinic children were referred on account of backwardness, about 40 per cent. more were sufficiently behind in their work to cause difficulty, but had not been recognized for lack of standardized education and intelligence tests. The term "backward" was used in relation to the child's individual capacity. Every delinquent and practically every child sent to the clinic was given tests of intelligence and also of education.

The Need for Intellectual Training

Many children whose education was retarded were found to present mental signs and physical symptoms suggesting an anxiety state. On tracing the history, however, it often became clear that the trouble had begun in anxiety which the child had suffered in early life from mental and nervous tension due to dammed-up mental energy. Such a child eventually became anxious, and developed fears of animals, of the dark, or of ghosts. These were merely an exaggeration of normal and natural dreads, but were exaggerated because the affective side of his nervous system was hyperexcitable. The majority of such children also gave evidence of precocity of thought in many directions. To allow them to run wild was worse than useless. The educational situation should be adjusted as far as possible. Subjects such as handwork, biology, and games did not give the necessary outlet for intellectual energy. Only intellectual subjects would do this, and much of the instability found among school children arose from under-education. A vicious cycle began, and the child, besides becoming tense, became unable to compete. An ambitious and frustrated father might coach him and worry him at home. The home atmosphere became charged with failure, and the situation became progressively worse. The corner-stone of mental hygiene in children was early and efficient teaching in the fundamental subjects of reading, writing, and arithmetic. The remedy was more knowledge about the value of intelligence and educational tasks, and less dependence on opinion. There was a tendency to over-emphasize the importance of sex in early years. Interest in sex matters varied indirectly as the standard of educational attainment, and the child whose mind was

adequately employed and who was given reasonable security would give little trouble in that direction. Among the delinquent group backwardness in education was very noticeable. It was amply clear in many cases that the delinquency was a compensation for lack of success in school. In the prevention of delinquency education was also of paramount importance.

Another factor that loomed large behind many of the problems was lack of discipline—not of punishment or repression, merely of that teaching which gave the child average decent rules of living. To deprive a child of guidance on how best to tackle life merely led to insecurity and indecision. The child's relation to the adult was of the greatest importance. The adult should form the base from which the child could work: he should be ready to help when difficulties arose, and even to check him when he was running into danger. Some parents avoided their proper responsibilities under the pretence of modernity and psychological insight. The remedy was the spread of reasonable information about bringing up children. The third cause of breakdown was lack of affection and normal home surroundings. An undisturbed home life stood high in the list of preservatives of mental health. Other important factors were bad physical posture, under-nourishment, lack of sleep, and fatigue. If greater attention were given to these points the mental attitude of children would immeasurably improve. Another great menace to the child was abstruse psychological theory in the mind of the parent. It was surely bad psychology to teach parents to inquire whether their children had death wishes for them, or were abnormally sadistic, or were showing a desire for self-punishment. Interpretations in terms of unconscious mechanism should never be given, for if, as was assumed, the disturbances were based on repressed forces, any interpretation of them could arouse only antagonism or rationalization. The most difficult parents were those who, being inherently unstable, had seized upon psychological theory and had become "mental hygiene conscious." Psychiatrists should try to express their ideas with psychiatric skill. Either there were simple common-sense explanations which would appeal to the lay mind, or they must disclose just as much as the layman could accept.

Dr. EMMANUEL MILLER pointed out the danger of overstressing bad physical health, which was often a result of psychic disturbance. It also was a mistake, he said, to underrate the breakdown on the conscious level due to conflict with parents and teachers over current problems. Many children were backward because of an underlying emotional embarrassment. Many cases of educational difficulty could be cured by changing the method of teaching, especially where the child gave figures a symbolic interpretation. Some children did not want to learn and some were afraid of learning, and the underlying cause must be sought. Deep therapy was, however, only necessary for cases of psychoneurosis and behaviour disorders uncomplicated by backwardness and specific educational maladaptation. Its information was too valuable to spurn, but it was difficult to apply in child guidance units. He advocated prophylactic psychotherapy for couples intending marriage. He saw a future for the therapeutic method which aimed at bringing the child back into its social group through collective play.

Miss MARY CHADWICK emphasized the great strain on an infant's mind of being born into an environment in which it was not wanted or which it disappointed or annoyed. She considered that a child might be saddled with the aggressive tendencies of parents or nurses. Dr. MILDRED CREAK pointed out the necessity for segregating children who suffered from specific reading difficulties and the similar but less well known arithmetical difficulties and those suffering from general emotional inhibition, which might masquerade as either of the other two. Much suffering could be saved, she said, by giving these children early special treatment. Dr. MARGARET LOWENFELD pointed to the importance of suiting the apparatus of learning to the age of the child. She mentioned Dr. Charlotte Bühler's work, which had shown clearly that a child might be prevented from learning by lack of the proper scaffolding. Children would not learn unless they had an emotional reason for doing so. It was useful to discover how a child looked at the idea that it should learn. Sometimes the provision of an emotional incentive cured the trouble. Dr. F. S. NOBLE said that much good could be done by helping parents suffering from anxiety or unconscious guilt in relation to a child's illness, especially when this had no convenient label.

Dr. LETITIA FAIRFIELD pointed to the disastrous physical and material defects of rigid habit-training, and to the child's need for the stimuli of petting and playing in order to carry out the ordinary processes of life and to gain experience to build up its mental content. Some maternity and child welfare clinics had much to learn in this direction. The educational problem might be more important in the home than in the school. A child's earliest associations with print might be the *News of the World*, which it was slapped for touching, and its earliest contact with figures was only too often the family budget, which in poor homes was nearly always a source of sorrow and anxiety.

THE THYROTOXIC HEART

At the meeting of the Medical Society of London, held at 11, Chandos Street, W., on December 10th, with Lord HORDER in the chair, a discussion took place on the thyrotoxic heart.

Dr. B. T. PARSONS-SMITH defined the term as signifying the association of thyroid toxaemia with cardiac affections. A concise pathology of thyrotoxicosis had not yet been visualized; it was therefore not surprising that the clinical manifestations of the disease were by no means uniform. For many years it had been recognized that the symptomatology might be chiefly or entirely circulatory in character, with little or no obvious evidence of thyroid enlargement. Among fifty consecutive cases he had surveyed palpitation and breathlessness were outstanding symptoms, and cardiac pain was relatively rare. The palpitation represented overaction, both in force and in frequency, of the heart-beat. Breathlessness and some degree of exercise-tolerance impairment were frequent accompaniments of the thyrotoxic heart. When cardiac pain occurred its intensity varied from a mild feeling of weight or ache to the full anginal syndrome. Varying degrees of discomfort and cardiac pain were noted in 8 per cent. of the fifty cases, and one patient was subject to attacks of typical angina. The objective signs of thyrotoxicosis were characteristic. The apex impulse was usually diffuse, extending over two or three spaces. It was more often than not palpable as a distinct shock, and might be associated with a thrill. The heart sounds in the majority of cases were sharp and accentuated. Murmurs, usually systolic, might be audible. In a small proportion of cases a presystolic lengthening of the first sound might not be differentiated from the somewhat similar phenomena in mitral stenosis. The systolic blood pressure was usually raised, the diastolic remaining either normal or subnormal. Signs of cardiac failure were likely to arise sooner or later, thereby complicating the general progress of the disease. As to treatment Dr. Parsons-Smith said that the modern tendency was definitely to emphasize the value of operative interference. But, although the limited scope of medical treatment in thyrotoxic states was recognized, it should be given a trial in the majority of cases, if only as a preliminary to operation at a later date. A prolonged period of rest, quiet, and relaxation would always form the basis of such treatment, and in the milder types might suffice to control the condition, assuming that the general nutrition could be maintained. A further consideration applicable to all cases was the possible presence of toxic foci, which might be responsible for cardiac dysfunction. Among drugs he mentioned potassium iodide, bromides, opiates, and other simple sedatives, iron and arsenic if anaemia was an obvious feature, and insulin to counteract persistent hyperglycaemia, also digitalis and mercurial diuretics. These principles of medical treatment were employed in twenty-one of the fifty cases he had mentioned, with the result that there was permanent cure in four, definite improve-

ment, though still obvious signs of thyrotoxicosis, in ten, and no appreciable change in seven. It was fortunate that an alternative method—surgery—was available, in view of the limited prospects of achieving efficient cure in the average case by purely medical methods. Thyroidectomy, not long since an extremely risky proceeding, was now moderately safe in the hands of a well-practised and expert surgeon. Of the twenty-nine cases submitted to operation, and excluding two patients who could not be traced, there was complete recovery in thirteen, partial relief from symptoms in nine, and no appreciable relief in five.

Lord HORDER noted that Dr. Parsons-Smith's list of drugs did not include belladonna, which had the sanction of no less a clinician than Trousseau a hundred years ago. As a general physician Dr. Parsons-Smith's general conclusions appealed to him. On reviewing his own practice, he was quite sure that he had come to invite the co-operation of his surgical colleagues in more cases and at an earlier stage than formerly. It was a very pathetic experience to discover, after months rather than weeks of a prolonged and tedious medical programme, that ground had been lost and structural damage done, involving greater risks in the future handling of the case than if an earlier decision had been made to embark upon thyroidectomy. All the same, this form of therapeutics, like many others, was a matter of evolution, and it was still a sound thing to treat these patients on a medical programme as a preliminary to surgical treatment if and when that was decided. One of the most extraordinary experiences in clinical medicine was to see a patient with Graves's disease, in dramatic ill-health, with the whole syndrome very strikingly manifested, so ill that surgical treatment was not recommended, and then, years afterwards, on meeting the patient, to find so little residue, sometimes no residue at all. One wondered what were the factors which determined that evolution of intense illness, especially when, later in life, there was no apparent relapse, in spite of septic conditions and physical, or perhaps psychological, strain. The cases that did not completely recover underwent exacerbations and relapses, but once the cure was effected, even without thyroid extirpation, they did not seem to get into the same condition again.

Sir THOMAS DUNHILL said that it was a pleasure to see the two sides of the profession co-operating in this field. Little by little they had each learned how much better was co-operation than rivalry. Of the pathogenesis of this condition there was still much to learn, and because of that the treatment of individuals could never be classified in round numbers. One never knew what was behind the scenes. He had felt that this disease should remain in great part in the hands of the physician, and that the physician and the patient together would realize when something more had to be done. He had, however, felt rather differently lately, when operating on patients in whom auricular fibrillation had been established and irremediable damage already done. Nowadays one had rather to fight to prevent operations for which the cases were not suitable, whereas originally the difficulty was to persuade to operation the people likely to benefit. Generally his feeling was that in middle age, when the heart had lost its earlier reserves, the individual was more likely to fall a victim to a form of intoxication which, though mild, continued for a long time.

Sir WILLIAM WILLCOX said that the important thing about cases of hyperthyroidism was that they varied so much, and no set rules could be laid down. In these cases of thyrotoxicosis any added infection, just as in diabetes, exaggerated the symptoms and was more likely to bring about a fatal condition. The pathogenesis was complicated, and brought in psychological and hereditary aspects. In thyrotoxic cases some of the barbituric acid drugs had a very enhancing effect. Drugs such as nembutal were contraindicated. Dr. EVAN BEDFORD said it was generally recognized that the degree of damage to the heart did not run parallel to the severity of the toxicosis as judged by the basal metabolic rate and the nervous symptoms. He did not believe that thyrotoxicosis by itself would injure the healthy and youthful heart to the extent of causing either auricular fibrillation or enlargement. He had analysed fifty consecutive cases of damaged hearts with thyrotoxicosis on which his surgical colleagues had operated, and in only about ten was there any other heart lesion, although admittedly the patients were of such an age that the coronary arteries were likely to be normal. He had seen a number of patients who in years gone by had been cured by medical measures and had presented themselves at the appropriate age with auricular fibrillation, without the least idea that it was associated in any way with their former condition. If the two conditions—thyrotoxicosis and a damaged heart—were present the cases could not be restored to normal by removal of the thyroid. Mr. L. E. C. NORBURY put in a plea for primary ligation of the vessels in severe cases where a thyroidectomy appeared too formidable. Dr. LEVY SIMPSON mentioned that some French physicians had been working on an anti-thyrotropic hormone. The results, although producing some benefit, were by no means conclusive. Mr. HOPE CARLTON questioned the distinction between primary and secondary toxic goitre.

Dr. PARSONS-SMITH, in reply, said that he had been rather disappointed in belladonna. As for auricular fibrillation, this might be only a disturbance of function, a temporary event in toxic conditions, not necessarily indicating structural heart disease.

HODGKIN'S DISEASE WITH ERYTHEMA NODOSUM

At a meeting of the Devon and Exeter Medico-Chirurgical Society, held on November 29th, with the president, Mr. R. WAYLAND SMITH, in the chair, Dr. C. J. FULLER showed and read notes on a case of Hodgkin's disease with associated erythema nodosum.

Dr. Fuller said that the case was that of a man aged 44. There had been evidence of glandular enlargement in the neck and axilla for the past ten months, and night sweats had been an accompaniment. Some twelve months before—that is, prior to the definite establishment of Hodgkin's disease—there had been an attack of erythema nodosum. Five weeks later erythema was noted on the back of the legs coincidently with a phlyctenular ulcer on the right eye. A month or so subsequently erythema multiforme had appeared on the back of the neck and on both forearms.

When seen at the meeting the man had enlarged glands on both sides of the neck and in the left axilla: the spleen could be palpated some two fingerbreadths below the costal margin. A portion of gland removed and sectioned had placed the diagnosis beyond dispute. Dr. Fuller said that the chief interest lay in the skin manifestations, and the reflections so called to the mind on the aetiology of erythema nodosum. Recent investigations had proved that a large number of cases of erythema nodosum were associated with tuberculosis, a few with streptococcal infections, and a very few with Hodgkin's disease. The question of treatment by deep irradiation was under consideration.

Dr. R. G. MICHELMORE, who had had the man under observation and treatment before admission to hospital, stated that prior to the appearance of the erythema nodosum he had complained of rheumatism in the knee. He quoted the work of Dr. Colles, published in December of 1933, on the aetiology of erythema nodosum, where figures gave 70 per cent. of cases with a tuberculous history, 20 per cent. related to streptococcal infection, and 10 per cent. with an indefinite origin. In Scandinavia association with tuberculosis had obtained special prominence, and it seemed now that erythema nodosum would no longer merit consideration as a definite entity. Dr. W. A. ROBB, who had sectioned the gland, reported that microscopically the findings were in support of Hodgkin's disease, and that the occurrence of erythema nodosum along with tuberculosis and lymphadenoma was pathologically acceptable. The presence of a phlyctenular ulcer tended to strengthen the relationship. Dr. C. WROTH said that the reaction to *x*-ray therapy was almost diagnostic in lymphadenoma. The general bath *x*-irradiation often proved more effective than local application, but in any case the success obtained would spell tem-

porary benefit only, the glands becoming resistant after several years' treatment, with resultant gradual retrogression in the symptoms.

Mr. A. L. CANDLER read notes on a case of non-malignant stricture of the hepatic flexure occurring in a boy, aged 6 years, who was admitted to hospital on August 16th, 1934, with extreme abdominal distension unassociated with definite pain or with vomiting. A history obtained seemed to make the symptoms of one month's duration only. At operation a hard stricture was found at the hepatic flexure, together with extreme dilatation of the proximal gut. The appendix was eight inches in length and distended to a diameter of one inch, thus affording a hope for means of relief of distension by appendicostomy. The latter was opened next day and a large tube passed into the caecum, but unfortunately the bowel remained paralysed up to the boy's death some five days subsequently. Mr. Candler added that the condition necessitating operation was not unlike that found in hypertrophic stenosis of the stomach. Dr. W. A. ROBB said that the section showed a predominance of muscular tissue with a considerable amount of fibrous tissue, and that there was no suggestion of malignancy. There were certain areas in the alimentary canal in which such spasms were likely to occur, and among these the hepatic flexure was included.

CORRESPONDENCE

London University and its Medical Schools

SIR,—The letter of Sir Ernest Graham-Little in your issue of November 24th raises a question which has caused no little anxiety among those who are connected with the University of London and its medical schools, and we are indebted to him for having put forward a concrete proposal designed to solve the problem of ensuring that those who go through the course of training and examination at the University should obtain a university degree. I think Sir Ernest conveys a rather more serious impression of the position than is actually the case, though this is bad enough. The figures at my disposal suggest that some 60 per cent. of those who pass the Second Examination eventually obtain the degree.

I am not sure, however, that the remedy he suggests really solves the problem, in spite of the support so ably given to it, on sentimental grounds, by Professor Greenwood. It is quite true that students coming to London from Oxford and Cambridge have a B.A. degree, but in no university in the British Isles, so far as I know, is a degree given merely on the strength of passing the Second Examination for a medical degree. At Oxford and Cambridge the degree is given after an examination in science (or arts), usually three years after passing the First Examination and one year after passing the Second Examination for medical degrees. A similar provision already exists in London ; for any student may, after passing the Second M.B. Examination, remain for another year in the anatomy or physiology departments and obtain a B.Sc. degree. Similar provision is made in most other English universities.

Sir Ernest admits that some adjustment would be necessary to give the degree he proposes a standing comparable with the other degrees of the University, but this would surely increase the difficulty and prolong the time taken for the student to obtain the M.B., B.S. degree, which is really his chief aim. There would also be a distinct element of danger in giving a degree of Bachelor of Medical Sciences to a student at that stage of his career, for the studies of human anatomy and physiology, though preliminary to the study of medicine, are not essentially medical in themselves. It is not inconceivable that the public might consider a person possessing such a degree as having a medical qualification, although he may never have done any clinical medicine. Further, we can well imagine that the public seeing B.M.S., M.R.C.S., etc., on a doctor's plate might easily be led to believe that the former letters meant Bachelor of Medicine and Surgery, when they may really mean " failed M.B."

No, Sir, what our medical students want is the M.B., B.S.Lond., and it is up to us to see that all reasonably intelligent students who have passed their Second M.B. get it. They want to be saved the duplication of Final Examinations, and also the duplication of examination fees. There appear to me to be two ways in which this is possible: one is by combining in some way with the other licensing bodies in London, and the other is by making the Final M.B., B.S. Examination sufficiently reasonable for the average student to take in his stride. Of the two, I think the former has certain advantages, and I believe it is perfectly practicable, given good will on all sides.

This is not the time or place to discuss this matter in further detail, but I feel convinced that some scheme must be evolved before long to bring about the result we all desire.—I am, etc.,

London, W.1, Dec. 10th. A. M. H. GRAY.

Curarine in Tetanus

SIR,—May I solicit the collaboration of your readers in a field of research? Our investigation of certain plant ingredients of curare has enabled my chemical collaborator, Dr. Harold King of the National Institute of Medical Research, to supply me with curarine in pure form. This is the alkaloid responsible for the classical action of curare in paralysing muscular activity.

During the past eighteen months the action of curarine on animals and on man has been under full investigation. There is one condition—that of severe tetanus poisoning—in which not only may curarine be an effective weapon therapeutically, but in which the drug may have to be given in large dosage. During the past year Dr. Leslie Cole of Cambridge has recorded his impression that crude curare, given in small doses, may assist cases of tetanus.[1] The advent of curarine has increased the possibility of large, accurate, and safe dosage in severe cases of the disease. But if large doses are to be given a means of artificial respiration must be available in the event of serious weakening of the respiratory muscles. In a case in Oxford which I saw and treated last April (by courtesy of Dr. Mallam) I put the patient into a Drinker respirator. I think that the efficient and portable Bragg-Paul respirator would be the present choice.

From time to time cases of tetanus, with symptoms arising within three or four days of infection, are such that a fatal prognosis can be made with little hope of error. I think curarine combined with artificial respiration may possibly save life in some of these cases. If any of your readers can assist me to see and treat such a patient I shall be most grateful. I can reach cases within 100 miles of London or Oxford within a few hours of word being received at either of the following addresses: University Department of Pharmacology, South Parks Road, Oxford (tel. 3562) ; Dreadnought Hospital, London, S.E.10 (tel. Greenwich 1881). I shall have with me all the apparatus necessary for treatment, which can be undertaken in either a hospital or a private house.

It should be emphasized that this treatment is still at an experimental stage. Supplies of curarine are limited, the drug requires very cautious handling, and large dosage is only safe in experienced hands and only justified in severe cases.—I am, etc.,

Oxford, Dec. 15th. RANYARD WEST.

[1] *Lancet*, September 1st, 1934, p. 475.

Dangers of the Glass Catheter

SIR,—The following recent experience prompts me to bewail the continued existence of the glass catheter.

On December 1st a district nurse was catheterizing a woman of 46 who had had the misfortune to suffer a transection of the spinal cord twelve years before, and had since suffered from retention of urine which required instrumental relief. On this day, as the glass catheter was being withdrawn, it snapped, and a large portion was left in the bladder. The patient was admitted as an emergency to the surgical unit. Even with wide dilatation of the urethra and the use of the cystoscope it was impossible to withdraw the glass fragment through the urethra, and suprapubic cystostomy was carried out to accomplish this.

We are all acquainted with the dangers of the Higginson syringe and its hard nozzle for enemata, and in the majority of hospitals its use is rightly forbidden: should not the glass catheter be rigorously excluded also? A rubber catheter suffices in most cases; instances of special difficulty are surely dealt with more safely by a gum elastic or silver catheter than by the glass weapon. Can we not persuade all to abandon it?—I am, etc.,

A. L. D'ABREU,
Surgical Unit, Welsh National School of Medicine.

Cardiff, Dec. 7th.

Physical Efficiency after Operations for Hernia

SIR,—In an article on the above subject published in your issue of November 17th I drew attention to the high incidence of recurrence in those policemen upon whom a double operation had been carried out at one sitting. Evidence in proof of this being a common experience was given by quotations from several large series of figures. My attention has been drawn to an omission in relation to this subject in the article in question, which in effect amounts to a misstatement. On page 898, in the first column, line 38, occurs the sentence: "In the forty-seven cases of recurrence bilateral hernia had been present and was operated on at one sitting." This reads as though all the recurrences had been observed in men in whom a double hernia had been operated on at one sitting. This is not the case. In the group of 206 policemen examined fifteen had had a double operation at one sitting, and a recurrence was noted as appearing later in eight of these. I should be glad if you would publish this correction. I do not think that the increased tendency to recurrence which has been proved after the double operation in one sitting is common knowledge. The cause of the tendency does not appear to be quite clear, but there is no doubt of its existence if any credit is to be given to statistical evidence.—I am, etc.,

C. MAX PAGE.

London, W.1, Dec. 12th.

Corpus Luteum Extract and Uterine Contraction

SIR,—A recent communication by Dr. Chassar Moir, read before the Edinburgh Obstetrical Society and reported in the *Edinburgh Medical Journal* (August, 1934), impels me to raise, through your columns, a pertinent point which ought not to go unmentioned—especially as it bears upon an apparent discrepancy between his clear-cut results and the equally clear-cut results of Professor Knaus of Graz, whose work is now widely accepted the world over. Moreover, Dr. Moir's results challenge experimental data of Dr. Willard Allen and myself, obtained under controlled experimental conditions in the unanaesthetized rabbit, in which we showed that potent extracts of corpora lutea exert a powerful *inhibiting* influence upon uterine contractions (*Amer. Journ. Physiol.*, 1932, cii, 39). Recent unpublished data show that crystalline progestin is endowed with this property, 0.2 mg. being sufficient to inhibit maximal oestrin-induced contractions in five hours.

It is surprising, therefore, to learn that Dr. Moir finds evidence of spontaneous uterine contractions during the latter part of the menstrual cycle, concurrent with the existence of a corpus luteum. In the light of controlled experimental data, this circumstance should, I feel, induce one to look for other than hormonal factors as a cause of the discrepancy, and I submit, on the basis of Schultze's findings (*Zentralbl. f. Gynäk.*, 1931, xlii, 3042), that the results of this investigator as well as of Moir are explicable on the basis of purely local intrauterine factors. Schultze found that in the early interval the uterus is so irritable that it does not retain well the lipiodol which is placed in the uterine cavity, but passes it up the tubes. Later, after the mid-interval, the uterus is so sluggish that it becomes well distended with the oil. The *necessary physiological consequence* of this is that if contractions occur spontaneously, or if they be induced by sudden distension (mechanical, Schultze) or chemical (Moir) means, the length of the muscle fibres of the uterus is so increased and the intrinsic irritability of the tissue so altered that relatively feeble contractions give a net recorded effect of considerable magnitude. From this point of view the conditions in the latter phase of the cycle are not dissimilar from what one finds in the expulsive capability of a compensated heart. I have recently witnessed an example of this. After injection into a rabbit of 0.6 mg. of crystalline progestin, which dosage in more than a dozen other rabbits effected *inhibition of motility* within two hours, the rhythmic contractions nevertheless continued with increased force and a progressive loss of tone, so that after four hours the contractions exceeded the pre-injection motility by more than 200 per cent.! At the end of this time, when the experiment was terminated, it was found that the balloon had become weakened on one side, giving rise to an aneurysm. As a result its capacity was increased at least fivefold. It is evident, therefore, that the hormonal influence of the progestin was completely overridden by alterations in the *physical relationship* of the uterus to the recording system.

It seems possible, then, that a relatively high degree of tone in the early interval should minimize the possibility of intrauterine distension, and so reduce appreciably the contractions recorded at this time. This is what Dr. Chassar Moir has found. On purely physiological grounds the converse may be said to hold true while there is low tone associated with the corpus luteum, as Schultze reports.

In conclusion, I should like to refer to Dr. Pompen's excellent work (Amsterdam, Thesis, 1933), in which he shows that the action of oestrin on uterine muscle is to *co-ordinate* the otherwise uncoordinate contractions over the whole surface of the uterus. The result of this action is to induce rhythmic contractions, as I had found previously (*Amer. Journ. Physiol.*, 1931, xcvii, 706). It would appear then that the effect of progestin is not to render the uterus *quiescent*, as I had suggested, but rather to render *uncoordinated* the rhythmic character of oestrin-sustained contractions of the uterine fistula in unanaesthetized rabbits.—I am, etc.,

SAMUEL R. M. REYNOLDS, A.M., Ph.D.,
Assistant Professor of Physiology, Long Island College of Medicine.

Brooklyn, Nov. 22nd.

Radiography and Pelvimetry

SIR,—I am delighted to read in your report (*Journal*, December 1st, p. 1009) of the Sections of Epidemiology and of Obstetrics of the Royal Society of Medicine that it falls to the lot of a general practitioner, Dr. T. J. Hollins, to call attention to the importance of radiographic methods in the accurate determination of the internal measurements of the pelvis. He held that "*x* rays should be used in all cases of primiparae, and in those cases of multiparae in which there had been trouble in a previous confinement." This exactly expresses my views, which I have held for a number of years now. In a paper I gave before the Section of Radiology at the Centenary Meeting of the British Medical Association, held in London in July, 1932, my opening paragraph was: "Every woman should have her pelvic measurements, accurately determined by radiography, engraved on the inside of her wedding-ring."

As pointed out by Dr. P. Hogan in the *Journal* of December 8th (p. 1076), "It is the minor grades of contracted pelvis which constitute the bugbear." Now it is just in these cases that radiography is so valuable, as the various diameters can be determined to a sixteenth of an inch if a proper technique, and a focus-film distance of at least four and a half feet, are used. Anyone interested can find the method I employ described in my paper published in the *British Journal of Radiology* of September, 1931. In this paper I also stated that

> "It is universally recognized that accurate pelvimetry is of the utmost importance in obstetrics, and as the minor degrees of contraction are the more difficult to gauge by the ordinary clinical methods, the radiographic method should come into more general use, especially as it causes no discomfort to the patient. I believe that if radiographic pelvimetry were universally employed, maternal mortality, and even more so maternal morbidity, might be considerably reduced. In a national maternity service the cost would not be very great, as it is only necessary for it to be done once in a woman's lifetime."

In Leeds there are about 2,000 primiparae a year, and I consider that the total cost would not exceed one pound per head. I have been in communication with the Ministry of Health and the local medical officer of health concerning this matter, but up to the present no move has been made. I think it is a matter that might well be tried out in one large town for two years, and the effect be watched on the maternal death rate.—I am, etc.,

Leeds, Dec. 10th. LEO A. ROWDEN.

Should Pelvimetry be Abolished?

SIR,—Mr. Aleck Bourne's letter on this subject raises issues of deep interest to all engaged in maternity work, and in it he asks his readers four questions. The first two are answered very perfectly and very adequately in Professor DeLee's *Principles and Practice of Obstetrics*, which reached its fourth edition ten years ago and may by now be regarded as common knowledge.

It is only with the third and fourth questions that I am concerned, and they may conveniently be taken together. Does the size and (although he does not say so, presumably it is to be included) the shape of the pelvis have much influence on the labour, and what is its importance? This, I admit, begs the question of what a normal labour is, and while no one has yet been able to define this, the gynaecological wards of the hospitals testify to what it is not. I think it will be agreed that a normal labour ought not to leave a woman on the waiting lists of a gynaecological department. In the year 1930 16 per cent. of the admissions to the Chelsea Hospital for Women were the immediate results of childbirth.

Mr. Bourne argues that "Holland and others" have shown that the vast majority of inductions of premature labour (for contracted pelvis) are unnecessary. I make no comment on Mr. Holland's views and work, but has Mr. Bourne, I wonder, momentarily forgotten that the "and others" regard a prophylactic version in a breech case as also unnecessary, albeit a foetal mortality of 20 per cent. or more may be attendant upon it? Admittedly this necessitates some definition of what is to be regarded as "necessary." Naturally one is loath to refer to one's own work, and mention is made of it only because I do perform a good many inductions of premature labour for disproportion. As adviser, for the last eight years, to the Ilford borough I have been responsible for (in round figures) 500 deliveries a year in its maternity home, and in the last ten years the maternal mortality rate has been 0.74 per 1,000 live births (approximately one-sixth of the figure for the country as a whole). I admit that 4,000 births (in round figures) is a very small number, but I think it is enough to decide whether the methods employed are sound and safe or the reverse. I personally regard the introduction of a bougie three weeks in advance of term and the subsequent spontaneous delivery as preferable to a difficult forceps delivery at the end of many hours of labour, accompanied by a tearing of all the vaginal tissues off the ischial spines, a perineotomy perhaps as the alternative to a considerable perineal laceration, damage to the pelvic fascias and the resulting prolapse, and a foetus with intracranial haemorrhage or cerebral oedema.

In every walk of life the prudent leave a reasonable margin of safety, and it is here, I think, that Mr. Bourne answers his own questions (3 and 4). The estimate of disproportion is not, in the present state of knowledge, an exact science (even with the aid of radiology), and a reasonable working margin of safety must be allowed. Mr. Bourne is a most prudent mariner, and he would not put to sea without a spare sail in his sail locker, nor a few spare rations in the galley, nor would he regard them as unnecessary if at the end of a cruise they had not been used. I refuse to believe that he would conduct cases of labour (in which the risks are far greater) without using all the aids that civilization has to offer—including the pelvimeter—coupled with a little margin of reserve to compensate for deflection, uterine inertia, or a failure of moulding to occur. In conclusion, I submit that except in the more extreme degrees, it can never be established that an induction was unnecessary, nor the use of an instrument—even in its reversed position (when it is a little more accurate than a knuckle).—I am, etc.,

London, W.1, Dec. 12th. EVERARD WILLIAMS.

SIR,—I am glad to see that so well known an expert in obstetric matters as Mr. Aleck Bourne has exposed the fallacy of pelvimetric measurements. As medical officer of a small ante-natal centre I have to perform these as a routine, but for some years have placed no reliance on them, for the simple reason that in numbers of cases with small measurements there has not been the slightest difficulty in labour, even with primiparae, whereas many with quite normal measurements have been found to have diminished internal conjugates or other signs of contraction. The only reliable tests I find to be the Munro Kerr method and the diminished internal (true) conjugate, as estimated with the left hand inserted into the vagina. Since this naturally involves an internal manipulation, I confine it to primiparae and those multiparae with a history of difficult labour. Obviously it is absurd to measure a woman who has already borne an 8 lb. child without difficulty for bony contraction of the pelvis.—I am, etc.,

Ryde, Isle of Wight, Dec. 15th. L. FIRMAN-EDWARDS.

Ante-natal Care and Maternal Mortality

Sir,—May I suggest that the fault in the lack of results from our increased services, both private and public, may lie at the door of the patients themselves? I heartily agree with Dr. G. S. Swan (December 8th, p. 1074) in his outline of the ante-natal care and subsequent treatment necessary in every case ; but does he find that all patients willingly submit to it? For the poorer classes he and others will agree that the clinic, followed by the midwife—plus the general practitioner (if necessary) and the hospital in special cases—must take the place of private consultations and attention, because the busy general practitioner cannot be expected to give a very great deal of time and work when no adequate payment can possibly be made. There is, then, a proved necessity for exceptional attention, whether given privately or free.

Now in either group (and I work in both) my personal experience is that it is very difficult to give really efficient ante-natal care except in a minority of cases. I find that the majority of women have not yet been educated to the importance of this branch of preventive medicine. We get a minority of sensible helpful mothers who submit to a proper course of care, and we get those who have had a fright in a previous pregnancy or in that of a relative, and those who develop some pathological condition which drives them to us ; but the majority are not helpful. Continually I ask mothers of new babies why they did not come to the ante-natal clinic, and they say, "I felt all right," or "I didn't like to come." Of course, my experience may be unique ; but if it is not then I must conclude that we have failed to reach the public.

Not only is there lack of co-operation by the women themselves, but there is lack of co-operation between the general practitioners and the medical officers of the clinics (here I refer to the poorer classes). If there existed a sympathetic understanding among the existing services much more might be achieved.

I would suggest, with regard to the education of the masses, that the powers that be might set afoot an advertising campaign in which our best brains and most persuasive tongues might be used to educate the mothers of Britain at meetings for mothers, and instil into them the importance of ante-natal care from the earliest possible moment, and plead for their co-operation with the medical profession in its fight against the maternal mortality rate. Much education might be done (and is done where there are facilities) among the poorer sections of the community in mothercraft classes held in connexion with child welfare centres ; but I do not propose to go into specified methods of training the maternal mind, but only to suggest the need of it.—I am, etc.,

Monkseaton, Northumberland, Dec. 10th. Jane H. Thompson, M.B.

Mortality from Haematemesis in Peptic Ulcer

Sir,—We much appreciate Dr. Bulmer's letter (*Journal*, November 17th, 1934, p. 920) criticizing our paper on the prognosis of haematemesis (*Journal*, November 10th, p. 858), and apologize for omitting his figures.

We agree that it would have been an advantage if the cases had been considered aetiologically, but in approaching our investigation from a purely clinical aspect we decided that it was impossible, in the vast majority of cases, to state definitely the cause of haematemesis on admission, and that therefore the majority of cases were treated symptomatically. We have endeavoured to bring our figures into line with Dr. Bulmer's, and have divided our fatal cases into aetiological groups according to post-mortem findings. It will be seen that the majority of cases in both groups are peptic ulcers, and assuming that non-fatal cases have a similar aetiological incidence, our total mortality is not seriously influenced by cases other than peptic ulcers. Our investigation was undertaken because of the unsatisfactory state of the treatment of haematemesis. There is no general agreement on the method of treatment or on the total mortality.

Considering our "moderate" group of 230 cases, the total mortality was 6.3 per cent., which appears satisfactory, but in the "severe" group of 153 cases the total mortality is 45.1 per cent. We have analysed our fatal cases of haematemesis due to peptic ulcer, have studied the post-mortem appearance of the ulcers, and have discovered that in approximately 70 to 80 per cent. of the cases a definite bleeding vessel was found. From the appearance of the vessels these cases could not be expected to respond to medical treatment. This raises an important issue. Is the method of treatment for haematemesis as now generally employed correct, and should not surgical or new medical methods be considered, especially in the "severe" group cases?

The results are summarized in the tables below.

Summary of Fatal Cases

Moderate

	Deaths			Necropsies Performed
	Total	Male	Female	
Acute ulcers	1	0	1	1
Chronic ulcers	11	10	1	11
Total ulcers	12	10	2	12
Cirrhosis of liver	2	1	1	2
Carcinoma of stomach	1	0	1	1
Various	—	—	—	—
Total cases	15	11	4	15
Severe				
Acute ulcers	12	8	4	11
Chronic ulcers	50	41	9	48
Total ulcers	62	49	13	59
Cirrhosis of liver	2	2	0	2
Carcinoma of stomach	3	2	1	3
Various	2	1	1	2
Total cases	69	54	15	66

Summary of Necropsies on Fatal Cases of Peptic Ulcer

Moderate

	Acute Ulcer		Chronic Ulcer	
		Per cent.		Per cent.
Necropsies performed	1	—	11	—
Bleeding vessel found	0	0	9	81.8
Bleeding vessel not found ...	1	100	2	18.2
Severe				
Necropsies performed	11	—	48	—
Bleeding vessel found	9	81.8	34	70.8
Bleeding vessel not found ...	2	18.2	14	29.2

—We are, etc.,

London, S.E.1, Dec. 11th. T. A. Lloyd Davies. R. W. Nevin.

A Mental Hospital Clinic

SIR,—In the matter of the milder neuroses no specialist can or should take the place of the family physician, whose good sense and scientific training should enable him to set at their proper value such subtleties as pseudo-psychology, psycho-analysis, dream symbolism, etc. The able physician understands his patient in relation to his environment as no one else can, and should take steps when he deems it necessary so that his patient may be afforded suitable rest, care, and further investigation, if desirable, away from possibly disturbing home influences.

For my part I consider the principal function of a mental clinic to be the provision of a simple method whereby the practitioner is enabled to obtain another opinion as to the suitability of his patient for treatment away from home, and whereby the mental hospital of the future can be more definitely associated with the independent practitioner; where also he can keep in touch with his patient if he so desires, and resume treatment on discharge with a full knowledge of his patient's progress and of such investigations of the case as were undertaken during the stay in hospital.

The word "authority" seems to act like a red rag to a bull in the minds of certain persons. It is surely time some protest was made. Rebellion to all forms of authority, evolutionary order, and restraint is being fostered—and now because a doctor in the position of a medical superintendent is too accustomed to order and precision he is said to be unsuitable to have charge of a mental clinic. Surely the contrary is the fact. There is order in all natural processes. Mental activity, like every other activity, is a result of physical processes, and disease or disordered function is not possible without some underlying physical basis. Insufficient stress—practically none, in fact—is laid on the factor of variable metabolism, although it should be the first consideration. Stress and strain of varying kind and degree acting on varying metabolism is the *fons et origo* of mental disorder. Molecular processes subserving cellular metabolism—such as the balance of ions obtaining in different tissues, and even different portions of the same tissue; the conditions subserving diffusibility and the influence of hormones thereon; the factors governing oxidation and reduction, intra- and extra-cellular; chemical mediators; the physiology of the neurone; and the effect of toxins—are paid little or no attention to.

There are no two stones alike, there are no two faces alike; how much more are there no two metabolisms alike! And each epoch of development has varying physical influences. Persons with innately unstable nervous metabolism are naturally affected by a given strain or stimulus in a more serious manner than are more stable individuals, and, dependent on degree of strain relative to abnormality of metabolism, the chances of ultimate recovery will necessarily vary. But it must be borne in mind that the lesion is primarily physical, and one which urgently calls for investigation, care, rest, and medicinal treatment directed towards elimination of irritants, a normal balance of ions, and restoration of disordered metabolism.

The more the true nature of the pathology of neuroses is masked by the cloudy verbiage of a pseudo-psychology and by energies directed into wrong channels, the less positive progress will be made in the direction of real ascertainment. It is quite impossible for a mental clinic to function satisfactorily if not in immediate touch with a mental hospital well equipped for full physical investigation, and with an efficient staff experienced in the many and varied forms of mental disorder.—I am, etc.,

B. H. SHAW,
Medical Superintendent, County Mental Hospital, Stafford.

December 10th.

SIR,—The letter of "Medical Superintendent" in your issue of December 8th (p. 1078) no doubt invites a reply. The choice of words used in the annotation appearing in the *Journal* might, I think, have been a little happier: it is hardly correct to say that the visiting psychiatrist conducts the clinic.

The St. Albans Nerve Clinic consists at present of a diagnostic and sorting out-patient clinic at the general hospital, and of a treatment and investigating clinic at the mental hospital, where, in addition to the psychiatrist, a psychologist and a psychiatric social worker are available for their particular duties in the clinic work. The medical superintendent directs all these activities, and personally acts as diagnostic physician at the general hospital as a member of the honorary staff. The visiting psychiatrist undertakes the treatment of those cases which are selected, after a preliminary investigation of the case and after considering reports by the psychologist and the psychiatric social worker at a conference at which they are present with the psychiatrist and the medical superintendent. Cases while under treatment may again become the subject of a conference, and will certainly become so before final disposal.

The visiting psychiatrist, it will be seen, is largely concerned with the psychotherapeutic treatment of the patient, but his activities cover more than this, so that it belittles the position to designate the practitioner as merely a psychotherapist. One of the reasons why a number of good men are lost to the service is, I believe, that there are no openings for them in it where they may confine themselves as specialists to the practice of their speciality, but as they become senior they are forced to accept administrative duties for which they may have little taste and for which they may be ill fitted. An appointment as a psychiatrist, not necessarily visiting but possibly whole-time, on some such lines as I have set out may well be a means of retaining the valuable services of such individuals and of enhancing the reputation of the service generally, so that it ill behoves anyone in the service to endeavour in any way to make the position appear less attractive.

There can be little doubt that a medical superintendent cannot carry on unless he has adequate and reliable officers to undertake the purely lay administrative work, though he must devote time to keeping in touch with them, if he is taking part in the work of the clinic on the lines set out; has ward rounds twice weekly in the hospital (where recent admissions and recovering cases are seen in consultation with the medical officer in charge and the house-physicians); has to consider the psychological aspects of the hospital cases to be discharged in connexion with the psychiatric social worker's reports after home visits, etc.; has a certain number of patients' visitors to see; and has to undertake the statutory requirements of the Acts as regards statements after admission and re-certification of patients, all of which are essentially medical duties. Your correspondent has apparently overlooked the fact that "in-patients at Hill End attend this clinic."

Few psychologists will deny, I think, that a person undertaking psychotherapy as I understand it—that is, any form of analytic treatment and readjustment—though he might do so with success if responsible for maintaining the discipline of the institution in which is the patient (who so often, as is characteristic of neurotics and psychotics, is constantly out to find objections to the routine and secure special privileges), does so at a great disadvantage, and in some cases would find it impossible.—I am, etc.,

W. J. T. KIMBER, L.R.C.P., D.P.M.,
Medical Superintendent, Hill End Hospital.

St. Albans, Dec. 11th

Corporal Punishment

A Plea for the Exemption of Girls

SIR,—I would be grateful if you would publish the attached correspondence with a view to finding out what is the opinion of the profession on the question whether the caning of girls can be justified on medical grounds.—I am, etc.,

Wetherby, Yorks, Nov. 28th. R. L. KITCHING.

Inglewood, Wetherby, Yorkshire.
SIR, October 14th, 1934.

About nine months ago I submitted to the Board of Education some criticisms of Corporal Punishment Regulations which seemed to me to lead to the conclusion that the caning of girls in public elementary schools should be prohibited on medical grounds. The reply was to the effect that the general policy of the Board was to leave the question of corporal punishment to the discretion of the local education authorities, and that the Board "have no reason to apprehend any abuse of this discretion which could be remedied by regulation."

It seemed to me that the policy of the Board was unsound, for the reason that it left the medical question of the effect of caning on the health of the school girl for the decision of individual county medical officers. It seemed to me that, when a county council refers a question of this sort to the county M.O., it is not a personal opinion that is wanted. I submitted this point to the Ministry of Health, and suggested that what is wanted in such a case is the opinion of the appropriate department of the Ministry of Health; and I asked if I might have an opinion from the Ministry of Health on the risks of caning girls during the menstrual period. I was informed on behalf of the Minister of Health "that the matter is not one within his jurisdiction," and that my request should be addressed to your department. I beg to submit two points:

1. The Corporal Punishment Regulations make it clear that young children must not be caned, but there is nothing in the regulations to suggest that a girl may be too old to be caned. Surely, if it is necessary to make regulations to prevent men caning young children it is just as necessary to make a regulation to prevent the caning of those girls who have developed the physique of womanhood?
2. I submit that the paramount reason for prohibiting the caning of girls in any circumstances is that it is the only certain means by which caning during the menstrual period can be prevented. There are, I suggest, two objections to caning during menstruation that are indisputable: (i) It must happen that some of the girls who are caned are suffering severe menstrual pain at the time, so that the pain inflicted must be more severe than was intended, and therefore may be more severe than is safe. (ii) Some of the girls must be suffering menstrual nervous strain, and the added strain may be more than the girl can safely bear.

It is obvious that caning is a form of punishment which involves serious risks, but it may well be that in the case of boys the risks must be accepted. The point I would submit to the Medical Department is that the risks are so much greater in the case of girls that this method of punishment cannot be justified. I would be grateful if I might be informed of the opinion of your department on this point. If your department is not prepared to advise the total abolition of corporal punishment in the case of girls, would you consider the suggestion that caning should be authorized in their case only between the ages of 8 and 10? I would be glad to know whether your department would make this suggestion to the Board.

I have the honour to be, Sir,
Your obedient Servant,

The Secretary, Medical Department, Board of Education. R. L. KITCHING.

Board of Education, Whitehall, S.W.1.
SIR, October 18th, 1934.

In reply to your letter of the 14th inst., I am directed to state that the Board are not satisfied that any alteration of policy with regard to corporal punishment is necessary. The Board's views in the matter are set out in the paragraph on discipline contained in the *Handbook of Suggestions to Teachers* (paragraph 4, page 12). Copies of this publication may be purchased directly from H.M. Stationery Office, York Street, Manchester, or through any bookseller (price 2s. net).

I am, Sir, your obedient Servant,
D. DU B. DAVIDSON.

SIR, November 3rd, 1934.

Please accept my thanks for your letter of October 18th. Corporal punishment is not mentioned in the paragraph to which you refer me, but it is stated that "some special arrangements for disciplinary purposes . . . are undoubtedly necessary in Mixed Schools . . . and in any large Mixed Schools the head teacher will do well to delegate a considerable measure of authority to one of the assistants of the other sex . . ."

I infer from this that it is the view of the Board that girls should not be caned by men. On the other hand the county councils, in their Corporal Punishment Regulations, give authority to head masters to cane girls. The suggestion I have made as a family doctor is that girls should not be caned at all by anyone.

I should not have presumed to make any suggestions to the Board of Education if I had not been convinced, first, that the family doctor has far better opportunities than anyone else for judging the effects of caning, and, secondly, that the suggestion I made would be supported by an overwhelming majority of family doctors, and probably of all doctors.

In view of the fact that the Board are not satisfied that any alteration of policy with regard to corporal punishment is necessary, I have no doubt that the right course for me is to raise the matter in one of the medical journals. I propose, therefore, if you have no objection, to send a copy of the letter I sent to the Medical Department, with your reply and this letter, to the *British Medical Journal*.

I have the honour to be, Sir,
Your obedient Servant,

The Secretary, Board of Education. R. L. KITCHING.

Board of Education, Whitehall, S.W.1.
SIR, November 27th, 1934.

With reference to your letter of November 23rd, I am directed to state that the Board have no objection to your taking the action proposed in your letter of November 3rd.

I am, Sir, your obedient Servant,
D. DU B. DAVIDSON.

Cervical Erosion and Discharge

SIR,—The interesting letter of Dr. Agnes Savill in the *Journal* of December 8th (p. 1077) encourages me to add something in the nature of a warning to those interested and likely to practise the treatment of uterine sepsis by zinc or copper ionization.

My father, the late Dr. Samuel Sloan, author of *Electro-Therapy in Gynaecology*, who taught me and many others, the technique of this treatment, emphasized two points: (1) the fact that the ions penetrate the mucous membrane, so that the treatment is specially useful in gonorrhoeal infections; (2) that when using a Sloan's copper electrode the current must be reversed at the end of the treatment for two or three minutes to loosen the electrode, which becomes adherent to the mucous membrane through coagulation of the albumin of the tissues. We experimented with newly killed beef and new-laid eggs, and the penetration of the $CuCl_2$ was very interesting to observe. With regard to (2), serious, dangerous bleeding may result if the current is not reversed for a sufficient time to loosen the electrode. I advise that the first treatment should consist of eight milliamperes for eight minutes. The current should be reversed for one or two minutes. The full dose

is twenty milliamperes for twenty minutes. If a zinc electrode is used it is not necessary to reverse the current. My father considered that zinc was useful in acute cervicitis, endocervicitis, and endometritis, but that copper was more efficient in chronic cases. I have found this by experience also.

Ionization is contraindicated in tubal infections and in most cases of ovarian inflammation. Therefore the medical electrotherapist should work in co-operation with the surgical gynaecologist.—I am, etc.,

London, W.1, Dec. 10th. ELIZABETH SLOAN CHESSER, M.D.

The Duodenum and the Kirby Grip

SIR,—In connexion with the recent correspondence on the above subject, the two following cases may be of interest.

A little girl, aged 2½, swallowed a Kirby grip two inches in length. *X*-ray examination showed it to be held up in the duodenum, and there it stayed for three weeks. At the end of this period it had moved, for the first time, to the left of the midline, rather as if it had backed out into the stomach to get into a better position for its attempt on the duodenum. At the end of four weeks it was passed normally, at a time when the nurse was so tired of combing the faeces that she nearly missed it. After reading of the difficulty encountered by Mr. Rendle Short at operation I am glad that I left it, and my reason for so doing was that the child never complained at any time of the slightest pain or discomfort.

The second case was that of a little girl, aged about 6, who had had persistent pyuria for several months. This was found to be due to a Kirby grip in the bladder, though who introduced it she would not say. When removed it was found to be embedded in a calculus the size of an olive.

—I am, etc.,

Guildford, Dec. 8th. LIONEL LANKESTER, M.B.

Influenza and the War

SIR,—Although fully alive to the horrors of war, I consider the statement by Dr. Warden (December 1st, p. 1019) that the influenza epidemic of 1918 was a result of the world war should not pass unchallenged.

It is stated in standard textbooks that an influenza epidemic occurs about every thirty years. The previous epidemic of 1891 was twenty-seven years remote, and a probably non-immune generation had grown up. I have inquired of hundreds as to their freedom from attack or otherwise in the 1891 and 1918 epidemics, and have not found a case that was a victim in both. An epidemic was due, and it appears to me that the statement that it was caused by the war is purely conjectural.

It is to be hoped that in the next epidemic (about 1948) we shall learn its relation to minor epidemics of "so-called" influenza, or whether there is a reservoir in other genera. Apropos of the latter possibility, in 1917 there was an epidemic among the horses and mules of the field ambulance in which I was serving similar to the virulent influenza in humans of the following year. An affected animal held its head in a dejected attitude and would not feed. There was a slight injection of the conjunctiva and a little mucus in the nostrils. The animal soon got down, never again rose voluntarily, and very soon could not be made to rise. Infected animals became dyspnoeic and died within one or two days. The veterinary surgeon would give no name to the disease. Post-mortem examination showed a slight bronchopneumonia along the anterior border of the lungs after natural death, but if shot before they started to "blow" the post-mortem findings were negative. Others, no doubt, had similar experience, and could probably tell of the extent to which this epidemic prevailed generally.—I am, etc.,

December 2nd. "INTERESTED."

"Applied Human Biology"

SIR,—I, too, consider the Norman Lockyer Lecture of Professor J. B. S. Haldane "provocative," but little more so than the last paragraph of your article about it (*Journal*, December 8th, p. 1054). To applaud his statement that, unless the present fertility rate greatly alters, the diminution of population will rapidly become catastrophic is to flout those who contend that the diminution will bring a progressive increase of the average income, which will certainly raise the birth rate to a replacement level within a few decades (unless people have really lost the desire to have at least one child of each sex). To applaud his view as to the uselessness of sterilizing defectives is to flout the Brock Committee. To applaud his statement that there is no evidence that the children of the poorer classes are innately inferior to those of the richer classes is to flout the opinion often voiced, even in your own columns, that the higher birth rate in the poorest districts is dysgenic.—I am, etc.,

London, S.W.15, Dec. 8th. B. DUNLOP, M.B., Ch.B.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on December 15th the following medical degrees were conferred:

D.M.—H. S. Brodribb, P. R. Greeves, R. McDonald, T. G. Lowden.

B.M.—H. N. Howells.

The following candidates have passed in the examinations indicated:

MATERIA MEDICA AND PHARMACOLOGY.—L. E. C. Davies, W. F. Dunham, D. B. Fraser, W. W. Gilford, W. E. Henley, D. A. Ireland, D. Jefferiss, J. F. Loutit, J. Mason, G. L. Peskett, H. Rees, C. W. Seward, G. Theophilus, E. G. Tuckwell, C. W. Whitty, E. M. Fisher, C. K. Westropp.

PATHOLOGY.—D. L. Davies, H. N. Davis, A. W. Dawson-Grove, W. W. Gilford, J. R. Hollick, M. H. Hughes, D. Kendall, J. F. Loutit, N. J. de V. Mather, R. W. Parnell, A. H. M. Richards, R. Roaf, K. C. Royes, N. K. Stott, J. Walter.

FORENSIC MEDICINE AND PUBLIC HEALTH.—G. Ashton, R. Bevan, H. Burton, R. N. B. Cridland, K. B. Dawson, D. H. Hertz, C. A. Hinds Howell, B. Hollins, E. C. O. Jewesbury, N. Leitch, D. F. G. Moir, J. R. Nassim, J. C. Paterson, J. C. Penton, K. C. Royes, N. K. Stott, W. R. Trotter, J. W. A. Turner, G. M Afoumado, N. E. R. Archer, E. M. Fisher.

UNIVERSITY OF CAMBRIDGE

The Vice-Chancellor has appointed Sir Daniel Hall, K.C.B., F.R.S., chief scientific adviser, Ministry of Agriculture, to be Rede Lecturer for the year 1935. The lecture will be delivered on Monday, March 4th, at 5 p.m.; the place and subject will be announced later.

The Council of the Senate has sanctioned a Grace for the conferment of the degree of Master of Arts upon Harry Norman Green of St. John's College, M.D., M.Sc.Sheffield, University Demonstrator.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—*‡‖E. Galinsky,*†§‖A. G. Hounslow, *‖Nora L. Keevil, *†M. J. F. McArdle, *§S. J. L. Taylor, S. H. Alavi, I. G. Anderson, Alberta I. Andrews, Elsie Armer, Margaret D. Baber, V. H. Barnett, D. M. Blomfield, H. B. Boucher, C. F. R. Briggs, J. A. Brocklebank, E. N. Brockway, W. M. Capper, B. S. Carter, W. H. Cartwright, Jean M. Cass, S. G. Clayton, Gladys E. Clyne, L. W. Davies, G. W. Duncan, K. C. Eden, E. D. Falconer, W. T. J. Fowler, Joan I. Franklin-Adams, D. J. Gilbert, F. R. Glover, B. S. Grant, L. Greenfield, J. Greenhalgh, T. F. R. Griffin, J. C. Harvey, F. S. M. Heggs, A. Hollingsworth, E. I. Jones, F. A. Jones, G. F. Jones, Alice M. Kaye, J. H. Kellgren, F. R. Kilpatrick, J. R. Kingdon, C. E. Langley, Margaret M. C. Louden, B. McArdle, G. G. Macdonald, A. L. McFarlane, W. M. Macleod, C. F. Mayo-Smith, C. B. Miller, Barbara G. Morton, J. A. W Musson, R. H. Purnell, A. M. Rackow, D. C. Reavell, A. T. Roden, B. F. B. Russell, K. G. Seager, Catherine L. Simmons, M. C. L. Smith, La-Iad Sobiya, K. Soddy, E. J. Somerset, W. H. C. Spooner, K. F. Stephens, G. L. Timms, T. G. Tregaskis, R. J. Vakil, M. E. Wigfield, E. Ll. Williams, Betty M. Zeal. *Group I:* Mary

Barber, R. M. Clarke, G. B. Davis, H. A. Eason, J. F. A. Forster, P. G. F. Harvey, I. H. Jenkins, A. E. Jones, A. C. Kanaar, A. Lasnick, J. B. H. McArthur, T. Miles, A. Moore, Elizabeth C. Morris, H. S. Pasmore, A. W. Probert, J. G. Sheldon, J. P. Thyne.
Group II: Marjorie Bolton, P. R. Boucher, R. B. W. A. Cole, V. H. J. Davies, H. J. Fenn, Barbara J. Fisk, E. A. Hardy, O. S. Heyns, D. M. Jones, J. G. Jones, J. A. Lewis, M. J. Lindsey, J. R. M. Martin, R. B. Morton, H. N. Perkins, J. H. Playne, Irene H. Rogers, R. Sollenberger, W. J. Stokes, F. G. St.C. Strange, W. H. Summerskill.

* Honours. † Distinguished in medicine. ‡ Distinguished in pathology. § Distinguished in forensic medicine and hygiene. ‖ Distinguished in obstetrics and gynaecology.

UNIVERSITY OF BRISTOL

The following candidate has been approved at the examination indicated:

FINAL M.B., CH.B.—*Part II:* R. A. Mathews (with second-class honours).

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on December 14th, the following appointments were made: Mr. J. C. Anderson, F.R.C.S., Lecturer in Applied Anatomy and Demonstrator in Anatomy; Mr. A. W. Fawcett, F.R.C.S., Lecturer in Surgical Pathology; Dr. E. F. Skinner, F.R.C.P., Lecturer in Psychology in the Faculty of Medicine.

VICTORIA UNIVERSITY OF MANCHESTER

Mr. Philip Godlee has presented to Lister House (the University medical hostel) a silver flagon, formerly the property of the late Lord Lister. This flagon was given to Lord Lister by his colleagues on the occasion of his appointment as Regius Professor of Surgery at Glasgow in 1860.

UNIVERSITY OF EDINBURGH

A graduation ceremonial was held in the Upper Library Hall on December 14th, when the following degrees and diplomas were conferred:

M.D.—Captain K. V. R. Choudari, I.M.S. (*in absentia*), R. T. Cooke, J. L. Cowan, *J. S. Faulds, †J. R. Innes, R. Y. Keers, R. M. Macfarlane, †A. C. M'Master, †A. S. Paterson, †Susanne J. Paterson, H. B. Porteous, D. C. Sutton, B. N. V. Wase-Bailey, †B. Williams.

D.Sc. (*Faculty of Medicine*).—E. B. Hendry, Dorothea M. Mowat.

M.B., CH.B.—G. L. Birnie, J. H. Bowie, B. H. Charles, A. O. Coker, S. H. Gibbs, G. R. Gunn, W. S. Harvey, R. M. Hayes, K. I. W. Kleinberg, G. C. E. Laing, T. Leontsinis, J. M'N. Lockie, H. H. Lockwood, I. Macpherson, H. R. Mores, G. B. Petrie, Johanna M. Pienaar, R. E. Prichard, M. A. Rifat, L. V. Roberts, G. G. Robertson, Una R. Roy, H. L. R. Sargant, F. Schwartz, G. A. Scott, I. M. Scott, G. A. M. Smith, H. Watson, H. Kai-gee Wong.

DIPLOMA IN RADIOLOGY.—A. R. Cowan.

* Highly commended for thesis.
† Commended for thesis.

NATIONAL UNIVERSITY OF IRELAND

At a meeting of the Senate on December 6th, with the Chancellor, Mr. Eamon de Valera, in the chair, Dr. Denis J. Coffey was elected a Pro-Vice-Chancellor of the University for the period January 1st, 1935, to December 31st, 1936.

A report from the President of University College, Dublin, as representative of the University on the General Medical Council, was approved.

Professor Thomas Walsh was appointed representative of the University at the Royal Institute of Public Health Congress at Harrogate in June, 1935.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A Council meeting was held on December 13th, when the President, Sir Holburt Waring, was in the chair.

Mr. R. St. Leger Brockman was elected a member of the Court of Examiners in the vacancy caused by the retirement of Mr. Ernest W. Hey Groves.

Dr. A. J. E. Cave, Senior Demonstrator in Anatomy of University College, was appointed Assistant Conservator of the Museum.

The secretary reported that at the Primary Fellowship Examination, held in Melbourne recently, forty-five candidates were examined, of whom twenty-two were approved.

A Diploma of Membership was granted to Mr. Garthowen Williams.

Diplomas of Fellowship were granted to the following forty-three candidates:

A. D. W. Jones, G. E. G. Peirce, A. N. Jones, B. Chaudhuri, J. A. Pocock, J. C. Nicholson, R. H. Franklin, Muriel H. E. Long, J. S. Batchelor, J. W. S. H. Lindahl, J. Scholefield, P. C. Sanyal, A. J. B. Goldsmith, H. H. Langston, G. T. Du Toit, F. J. S. Gowar, A. F. Goode, F. Radcliffe, S. C. Suggit, W. G. Gill, H. M. Williams, S. C. Misra, J. A. S. Marr, G. K. Mulki, G. Qvist, J. Hardman, S. Rameshwer, J. K. Elliott, A. W. Badenoch, J. J. Brownlee, W. H. Graham, W. R. Henderson, R. J. Katrak, Hilda M. Linford, W. S. McGrath, J. A. McLauchlan, G. H. Macnab, W. H. B. Magauran, J. A. Martinez, R. Nagendran, H. K. Pacey, E. A. Rowlands, H. I. Turnbull.

Licences in Dental Surgery were granted to forty-eight candidates.

Recognition of Hospitals

The Council agreed to recognize the following first list of hospitals with the posts specified for the six months' post of resident house-surgeon, or other responsible post in charge of general surgical patients in the wards of a general hospital required of candidates before admission to the Final Examination for the Fellowship:

Dreadnought Hospital, Greenwich, S.E.—(two house-surgeons); Hampstead General and North-West London Hospital—(two house-surgeons); Prince of Wales's Hospital, Tottenham, N.—(two senior house-surgeons); Royal Northern Hospital, Holloway, N.—(one resident medical officer and three house-surgeons); Royal United Hospital, Bath—(first and second house-surgeons); Blackburn and East Lancashire Royal Infirmary—(one resident surgical officer and two house-surgeons; Royal Victoria and West Hants Hospital, Bournemouth—(three house-surgeons); Royal Devon and Exeter Hospital—(two house-surgeons); Gloucestershire Royal Infirmary and Eye Institution—(one resident surgical officer and two house-surgeons); Huddersfield Royal Infirmary—(one resident surgical officer and three house-surgeons); Hull Royal Infirmary (one resident surgical officer and three house-surgeons); Leicester Royal Infirmary—(four house-surgeons); Norfolk and Norwich Hospital—(three house-surgeons); Nottingham General Hospital—(four house-surgeons); South Devon and East Cornwall Hospital, Plymouth—(one resident surgical officer and two house-surgeons); Royal Portsmouth Hospital—(one resident surgical officer and two house-surgeons); Bolton Royal Infirmary—(one resident surgical officer and one assistant resident surgical officer); Preston and County of Lancaster Queen Victoria Royal Infirmary—(three house-surgeons); Royal Berkshire Hospital, Reading—(two house-surgeons); Salford Royal Hospital—(one resident surgical officer and three house-surgeons); Worcester Royal Infirmary—(two house-surgeons).

Primary F.R.C.S. Examination in India

The first Primary Fellowship examination to be held in India will take place in Madras on Thursday, December 27th. About eighty candidates have entered their names. The examiners appointed by the College are Professor William Wright of the London Hospital Medical School (anatomy) and Profesor John Mellanby of St. Thomas's Hospital Medical School (physiology). Mr. Horace H. Rew, the director of examinations of the College, is travelling with them to supervise the arrangements. The party, returning by air, should be back in England on January 14th, 1935.

The Services

DEATHS IN THE SERVICES

Surgeon Commander Stewart Russell Johnston, R.N., died in London on December 13th. He was educated at University College Hospital, and took the M.R.C.S., L.R.C.P.Lond. in 1916, joining the Navy immediately afterwards. He became surgeon lieutenant commander on October 24th, 1922, and surgeon commander on October 24th, 1928. He served during the war of 1914–18, and had gained the Sir Gilbert Blane medal.

Lieut.-Colonel Denham Francis Franklin, R.A.M.C. (ret.), died at Bournemouth on December 1st, aged 76. He was born on February 8th, 1858, and took the L.R.C.P. and S. at Edinburgh in 1879, also subsequently the F.R.C.S.Ed. in 1888, and the D.P.H. in the same year. Entering the Army as surgeon on July 21st, 1880, he became lieutenant-colonel after twenty years' service, and retired on April 12th, 1903. He served in the South African War in 1899–1900, and took part in operations in the Transvaal and Orange River Colony, including the actions at Paardeberg, Poplar Grove, Pretoria, Johannesburg, and Rhenoster Kop, and received the Queen's medal with three clasps. He also rejoined on February 7th, 1915, for service in the war of 1914–18.

Obituary

ELEANOR DAVIES-COLLEY, M.D., F.R.C.S.

Senior Surgeon, South London Hospital for Women

We regret to announce the death, on December 10th at the age of 60 years, of Miss Eleanor Davies-Colley, who was the first medical woman to be admitted to the Fellowship of the Royal College of Surgeons of England.

The daughter of a distinguished Guy's Hospital surgeon, the late Mr. J. N. C. Davies-Colley, and sister of Mr. R. Davies-Colley, surgeon to Guy's, she received her medical education at the London School of Medicine for Women and at the Royal Free Hospital. Soon after qualification Miss Davies-Colley was appointed house-surgeon at the new Hospital for Women in Euston Road, and, subsequently, surgical registrar at the Royal Free Hospital. She graduated M.B., B.S. Lond. in 1907, proceeded M.D. in 1910, and in the following year obtained the F.R.C.S. As senior surgeon to the South London Hospital for Women and senior obstetrician at the Elizabeth Garrett Anderson Hospital, Miss Davies-Colley was noted for her skillful and conscientious work.

Mrs. D. C. NASMYTH, M.D., writes from Boars Hill, Oxford:

In the passing of Eleanor Davies-Colley there has left us not only a brilliant surgeon but one of the finest characters I have ever known. No one could work with her or be her patient without the realization that here indeed was a real nobility of soul. I have known her in both capacities: was of her generation as a student at the Royal Free Hospital, had the honour to be her friend, and, later, her patient in two major operations. She was, as a student, a striking figure, tall and beautiful, but never exactly popular. Her ideals were too high and too uncompromising, her sincerity too stark, perhaps. An intolerance of anything but the best, whether in work or in character, a shy manner, do not make for popularity. There was no pose of superiority—in fact, under an immense reserve a great humility of mind. Her faults were but the defects of her qualities, and as a colleague and friend she ranked among the best. In both these capacities she lived and worked with Miss Chadburn, M.S., in Harley Street, and the loss to her is irreparable. She had private means. With a cultured appreciation of all forms of art and a great feeling for real beauty in her surroundings she might have led a very different life, but something drove her to renounce all this and to live a life of austerity and self-denial and continual hard work.

She started her medical career later than most students, having already spent some years in a cheap flat in East London studying the condition of the poor. As a student she seemed to have all the makings of a really fine physician, and so much personal nervousness and a certain delicacy of constitution that I doubted her success as a surgeon and did my best to persuade her to stick to medicine. But her heart was set on surgery, and she was right. She made a splendid surgeon, and the kindness and skill of her after-care made one feel that one was also in the hands of a great physician.

I do not write only of my own experience. Our paths diverged: hers to Harley Street, mine to G.P. work in the provinces. But I have sent her many patients from all walks of life, and they all returned with the same feelings towards her. Her everlasting kindness to many humble patients, both in and out of hospital, will live in their hearts as a constant memorial. She was a great surgeon with all the sensitiveness, intuition, and sympathy of a good physician, and above all she was a great and honourable lady.

THEOBALD SMITH, M.D.

Director Emeritus, Department of Animal Pathology, Rockefeller Institute for Medical Research

The death of Dr. Theobald Smith in New York, at the age of 75 years, removes one of the great pioneers in veterinary and medical research of our time.

Born in Albany, N.Y., in 1859, he graduated at Cornell and the Albany Medical College (1883) and subsequently held the positions of director of the pathological laboratory of the Bureau of Animal Industry under the Department of Agriculture and professor of bacteriology in the Columbian University. It was during this fruitful period that, by a series of decisive experiments undertaken in collaboration with Kilborne (1893), he made the epoch-making discovery of the transmission of red water in cattle by ticks, and demonstrated the passage of infection through the ova of one generation of ticks to the next. This was the first occasion that a protozoal parasite of mammals was proved to be disseminated by the bite of a blood-sucking arthropod, and in point of time preceded Ross's better-known discovery of the transmission of bird malaria by the mosquito by five years. That this great event in the history of medicine attracted so little attention at the time must be ascribed to the fact that it concerned cattle rather than man. He also published important work on the aetiology of blackhead in turkeys, and as early as 1895 found that scurvy supervened if guinea-pigs were placed on a diet deficient in greenstuff: he was thus one of the first experimental workers in the field of deficiency diseases.

From 1896 to 1915 Dr. Theobald Smith was professor of comparative pathology at Harvard University, and during this second phase of his career made many original contributions to the subject of animal disease in relation to man. In 1898 he investigated the problem of differentiating the bovine and human types of *B. tuberculosis*, and in 1904, in a letter to Ehrlich, wrote the original description of classical anaphylactic shock in the guinea-pig—a syndrome still known as the "Theobald Smith phenomenon."

In 1907 he actively immunized guinea-pigs by the injection of a balanced mixture of diphtheria toxin and antitoxin, and two years later suggested that the method invited further tests as to its ultimate application to human beings, thus anticipating by several years the use of toxin-antitoxin mixtures later described by von Behring and Park.

From 1915 to 1929 Theobald Smith was occupied as director of the department of animal pathology of the Rockefeller Institute for Medical Research, and subsequently became director emeritus. His work in 1915 on milk as a vehicle responsible for the distribution of streptococcal sore throat attracted much attention, and in 1922 he made another discovery of basic significance by showing that natural maternal bacterial antibodies were excreted in the colostrum of the milk of cows, and that if the calves were deprived of this colostrum they invariably died of bacterial infection.

Dr. Theobald Smith was the recipient of honorary doctorates in many universities, and, among others, was an honorary member of the Danish Royal Academy and the Swedish Medical Society, and a foreign member of the French Academy of Sciences and the Royal Society

of London, which awarded him the Copley medal. Since 1907 he had been an honorary Fellow of the Royal Society of Tropical Medicine and Hygiene and was a recipient of the Manson medal in 1932. Other awards included the Mary Kingsley, Kober, Flattery, Trudeau, and Gerhard medals. Not the least satisfactory feature of the life of this brilliant and versatile experimentalist was the world-wide recognition of the value of his work during his later years.

ANDREW BAXTER, M.D., D.P.H.

We regret to announce the death on December 8th of Dr. Andrew Baxter of Alderley Edge, Cheshire. After studying medicine at the University of Aberdeen he graduated M.B., C.M. in 1892, and proceeded M.D. five years later. In 1909 he obtained the D.P.H. of Manchester University. During the war he served as Lieut.-Colonel R.A.M.C.(T.) commanding the 2/2 East Lancs Field Ambulance, and was twice mentioned in dispatches. Dr. Baxter had been a member of the British Medical Association for the past thirty-four years.

We are indebted to Mr. WARWICK DEEPING for the following appreciation:

My friendship with Andrew Baxter began during the war. When I joined him in the 2/2 East Lancs Field Ambulance I realized that I should be serving under a very great gentleman. The war may have destroyed many illusions, but it gave us other realities, and to me my friendship with Andrew Baxter was one of them. He was the most lovable man I have ever met. I never knew him do a mean thing. He was so essentially human and so wise that he could be magnanimous and generous even under the stress of danger and difficulty. He could laugh and he could be angry, but always there was a clean rightness in his anger. It was easy for me to understand how the man I knew in the war was in peace the beloved physician. He understood so much, had such kindness. And he loved his work. He was essentially a healer. In my very last letter to him I said that if one was sick he would be one of the few people who would be more than welcome at one's bedside. This is but a small personal tribute to a man who was universally loved, and who was, as another friend says, "One of the finest types of general practitioner it will ever be our lot to know."

S. B. FENN, L.R.C.P. AND S.ED.

The death of Dr. Samuel Backwell Fenn, at the age of 71, took place in a nursing home in Southport on December 1st. He was taken ill only a few days before at his house in Settle, Yorkshire, to which he retired a few years ago. Dr. Fenn took the L.R.C.P. and S.Ed. in 1885, and shortly after went to Madagascar, where he had charge of the large medical mission hospital under the Society of Friends, and made a valuable contribution to the work there in training Malagasy medical students. After seven years he resigned this work, owing to the ill-health of Mrs. Fenn, and settled in Southport, where he built up a large general practice during thirty-three years—a proof of his devotion to his patients, whose interests he assiduously studied. He was prominent in the work of the Order of St. John of Jerusalem, as a lecturer and in forming the first nursing division in Southport. He was an honorary life member of the association and an officer of the Order. During the war Dr. Fenn took an active part in the formation and conduct of Great Britain's largest voluntary hospital, which was under the auspices of St. John in Southport. He was medical officer to the Southport Hydropathic Hospital, a branch of work that keenly interested him. He was a past president of the Southport Medical Society and in 1921 was chairman of the local Division of the British Medical Association, of which he had been a member for forty-six years. Apart from his profession, Dr. Fenn took an active share in religious and philanthropic work. He was a wide general reader, a Fellow of the Royal Geographical Society, and a very fluent speaker and lecturer in several languages. He is survived by a daughter and three sons.

Dr. W. W. SHRUBSHALL (Burgess Hill) writes: I have no doubt others will write of the late Dr. S. Backwell Fenn's professional life; may I crave a small space for appreciation of his character and friendship? Dating back to 1883, our acquaintance continued from Edinburgh student days to his death, and though he was in Madagascar and I in the Far East for several years correspondence kept us in touch, and return to England again brought us to closer friendship. Fenn did not "wear his heart on his sleeve," but week-ends spent together in the then charming village of Aberdour on the Forth, walking tours in the Highlands, mountain climbing in Switzerland, and the domestic life of his home, revealed in heart-to-heart talks a manly character of high ideals, deep religious convictions, and a warmth of heart constantly expressed in kindly action. His friendship was firm and to be relied on, and none who experienced it can but have the sense of a very heavy loss now that he has gone.

Dr. HARRY SPURRIER died at the age of 59 at Benenden on December 8th. Born in 1876, and educated at St. Thomas's Hospital, he held several posts there after qualifying—these included casualty officer, house-physician, and obstetric house-physician. On leaving the hospital Dr. Spurrier settled in Maidenhead, where he soon built for himself a large practice. At the beginning of the war he succumbed to tuberculosis, and had to leave Maidenhead to undergo a long course of treatment, which, though it checked the disease, never enabled him to regain his full strength, and consequently prevented him from returning to general practice. Since that time Spurrier devoted his life to the treatment of tuberculosis, and held the appointment of senior assistant medical officer of the Middleton-in-Wharfedale Sanatorium. He was also at one time assistant medical officer to the Brompton Sanatorium, Frimley, and surgeon to the King Edward VII Hospital, Windsor. For the last thirteen years he had been medical superintendent of the National Sanatorium, Benenden. In spite of ill-health, which during the last few years had become steadily more marked, Spurrier never spared himself, and devoted all his energies to sanatorium work. He created a friendly atmosphere among the patients and staff, and made his sanatorium popular. He was always able to inspire hope, even in the most serious cases.

Dr. HUGH KERR, medical superintendent of the Bucks County Mental Hospital, died in a London nursing home on November 17th, after an illness lasting several months. An Ayrshire man, Dr. Kerr was educated at Glasgow University, where he took his M.A. He proceeded to study medicine, and graduated M.B., C.M. (commended) in 1892. His first appointment was that of A.M.O. at Abergavenny Mental Hospital. He stayed there until 1896, when he obtained a similar post at the Bucks County Mental Hospital. Three years later he took the Glasgow M.D. In 1908 he succeeded the late Dr. Humphry as medical superintendent—the committee offering it to him—and this appointment he held until shortly before his death. Dr. Kerr did much for the welfare of the hospital and its patients. Possessed of a quiet manner, he got through a lot of work without ostentation. He took interest in, and did much for, the welfare of the local village of Stone. He was a genial man, much liked, and very popular with the patients and staff of the hospital. He contributed several publications of interest to the medical journals. Dr. Kerr was a keen and prominent Freemason.

CORRIGENDUM

In the heading and first paragraph of Dr. R. F. Moorshead's obituary (*Journal*, December 15th, p. 1130) he was erroneously described as secretary to the London Missionary Society. He actually held the post of medical secretary to the Baptist Missionary Society.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

In the House of Lords on December 17th Viscount ELIBANK moved that the Select Committee to which the Registration and Regulation of Osteopaths Bill was committed should have leave to hear counsel for and against the Bill, and to examine witnesses on oath. He said the course he suggested would facilitate the proceedings of the Select Committee and be of advantage to it in reaching a proper solution of the question. The resolution was agreed to.

Sir Francis Fremantle and Dr. Salter are appointed to the Publications and Debates Committee of the House of Commons.

The Government hopes to circulate the Housing (Scotland) Bill during the Christmas recess.

The St. Bartholomew's Hospital Bill and the West Riding of Yorkshire Mental Hospitals Board (Superannuation) Bill will originate in the House of Lords.

The Educational Endowments (Scotland) Bill has passed through Standing Committee and was reported to the House of Commons with amendments on December 13th.

Health Services in India since 1921 Reforms

In the House of Commons, on December 10th, Sir SAMUEL HOARE moved a resolution to the effect that the House accepted the recommendations of the Joint Committee on Indian Constitutional Reform as a basis for the revision of the Indian Constitution, and considered it expedient that a Bill should be introduced on the general lines of the report. During the debate Mr. RAIKES referred to the manner in which the 1919 reforms had worked in regard to the welfare of the masses—the peasantry of India—and how the transferred Departments had worked. The money spent on education, he said, had gone up continuously in the last fifteen years, not to provide better education for the peasants, but secondary schools, colleges, and universities, into which the peasants never had a chance to go. No doubt the observation was brought before the Joint Select Committee that education had deteriorated in the villages. Turning to the medical services, he said that in almost every district of India criticisms were met not only of the amount of money spent on outworn and archaic Indian systems of medicine by the gentlemen who had taken charge, but of the fact that grants were made to the hospitals and colleges to provide those outworn systems of medicine which were simply producing the things that would have died out if Indian politicians had not debilitated matters. The peasant had to pay for that. It was also generally admitted that political wire-pulling was not unknown in the medical services since transfer. He put it no higher than that.

When the debate was continued on December 11th the DUCHESS OF ATHOLL spoke of the deterioration in the work of the local authorities in India and its prejudice to the welfare of the masses. She said an ex-director of public health had stated in a recent review that many local authorities had brought to an end the extension of schemes of drainage and water supply which had been steadily increasing before the reforms of 1921. In many cases, he said, they had got into such financial difficulties that they had not even been able to maintain the services of the kind which had been provided before. Let the House imagine what danger that meant to public health in a country such as India, with all its many epidemic diseases. An inspector-general of civil hospitals told the Joint Committee of grave deterioration in the health services due not merely to the deficiencies of local authorities but to the administration of the Minister himself and his constant interference in medical appointments. Most unsuitable men had been appointed. A professor of physiology was appointed, the Joint Committee was told, who admitted to the principal of a medical college that he had never lectured, never demonstrated, and had done no physiology since his student days. An ex-inspector-general of hospitals spoke of the thousands of eyes that were blinded every year in India through operations for cataract performed by unqualified quacks, who were trained in institutes which were now receiving grants from public funds owing to the political pressure put on Ministers by provincial councils, which they had not been able to withstand. When they learned of facts such as those, was it not inevitable that members should feel that the greatest caution was necessary in giving further powers?

Miss RATHBONE asked the Secretary of State for India what was the position of the Women's Medical Service in the new arrangements, and was it not time that this service should be given a more stable and recognized position, possibly by setting it up as a definite branch of the Indian Medical Service? Since the women's service was already subsidized by the Government the change would not necessarily cost more money.

The resolution approving the recommendations of the Joint Select Committee was carried by 410 to 127.

Safety in Mines

Replying to Mr. David Davies, on December 11th, Mr. E. BROWN said he could not make any statement at present regarding the introduction of amending legislation to increase the safety of mine workers. A few months ago new regulations were made to secure improved lighting. Proposed regulations for the provision of fire-damp detectors were about to be published.

On December 11th Mr. TINKER asked the Secretary for Mines the name of the colliery where the ascertained depth was 3,800 feet and the temperature 103° dry bulb and 80° wet bulb. Mr. BROWN replied that these particulars applied to one district in the Arley Seam at Parsonage Colliery, Lancashire.

Punishment by Flogging

On the motion for the adjournment of the House of Commons, on December 11th, Mr. BERNAYS raised the question of the advisability of an inquiry into the punishment of flogging, which arose out of the case of the Dartmoor convict, Collins. Collins was condemned to twelve strokes with the "cat" and three years' penal servitude for an act of violence while trying to escape from Dartmoor prison, and he committed suicide in gaol on November 29th. Mr. Bernays stated that in a letter Collins left in his cell he said that he was being slowly murdered, and every night he was lashed with the "cat." His head was awful with all the worry, and he thought it might go back on him at any minute. He had tried to hide what was really the matter with him from the doctor, and did not tell him all. Mr. Bernays added that he was sure the officials at Dartmoor were humane men, and that nothing they did caused this terrible suffering. He asked for an inquiry to discover whether flogging was really a deterrent, whether it was not too brutally administered, and whether, if it was really necessary in the last resort, its use ought not to be more seriously restricted than at present. He called attention to a letter written to the *Daily Telegraph* on December 7th by a medical officer in a convict prison.

Mr. ISAAC FOOT said the evidence showed that the officials of the prison did all in their power in this case, and there certainly was no criticism of the medical officer. Mr. O'CONNOR said it was easy to work up hysteria. When he himself read the letter from the prison doctor which Mr. Bernays had quoted he thought that the doctor was making an unfair reflection on the men who had to perform the duty of flogging. He was sure, however, that the people who performed those sentences were scrupulously impersonal. Sir JOHN GILMOUR pointed out that, on the one hand, this form of punishment was ordered by the court after very careful consideration, and on the other, it could only take place after an inquiry by magistrates on the spot in the prison. It was subsequently brought to the Home Secretary, and it was on every occasion most carefully and meticulously supervised by the medical officer. If there was any doubt in the mind of the medical officer, his view was paramount in the matter, and, even when the punishment was being carried out, if there was the slightest sign that would lead the medical officer to suppose any serious and permanent injury was likely to be inflicted on the individual, on his word that punishment ceased, and was not continued. It was carried out with the greatest care and circumspection, and he trusted that the House would not ask for an inquiry of this kind.

The discussion then ended.

Disinfectant Mistaken for Shark Oil

In reply to Mr. Paling on December 12th, Sir Philip Cunliffe-Lister said he regretted the occurrence by which doses of what was thought to be shark oil, which had been used with success at hospitals in Tanganyika as a substitute for cod-liver oil, were issued on the instructions of the head mistress, herself a doctor, to the native pupils at Malangali girls' school, Tanganyika. It had now been established that the liquid used was not shark oil, but some form of disinfectant resembling it in appearance but containing arsenic, with the result that all who had taken doses, including the head mistress herself, became ill, and thirty-five of the girls died. It was not yet known how the mistake occurred. Orders were issued immediately to every Government station and to all hospitals, tribal dressing stations, dispensaries, and mission stations to the effect that the use of shark's oil must be discontinued at once until after the matter had been investigated. The question of further action must depend on the investigation.

Working Conditions of Seamen

In the House of Commons, on December 14th, Dr. Burgin moved the second reading of the British Shipping (Assistance) Bill.

Dr. Addison moved its rejection in a reasoned amendment, which regretted that the Bill was not accompanied by measures to ensure good working conditions on board ship. He remarked that Dr. Burgin had said nothing about the accommodation of the seamen. In 1906 a special committee of the Port of London Sanitary Authority specified nine conditions which should apply to accommodation aboard ship. These related to living quarters, ventilation, accommodation for food, and so forth. The only suggestion fully carried out was the provision about the cubic space per man. Two others, relating to a separate room for messing and to crews being berthed aft, were included in the standard ship which Lord Maclay encouraged. The rest of the provisions had not been adopted. Defective accommodation affected the health of the crews. The statistics of mortality issued by the Board of Trade in 1932 showed that 3,166 seamen died in that year. Only 642 were occupied seamen. Of the rest, 625 died within twelve months of leaving the service, 295 within three months of retirement. They left to die. Out of 3,000, 611 died from tuberculosis and other respiratory diseases. Parliament when giving a subsidy of £10,000,000 for building more ships was entitled to secure that men were not subject to accommodation which gave such results.

Mr. Runciman, in reply, cited the same report of 1932 on mortality in the mercantile marine as saying that "apart from drowning and injury, service in the mercantile marine is no more inimical to life and health than are many occupations ashore frequently regarded as healthful. Dr. Addison said the statistics showed large numbers of men retired from the service to die. Mr. Runciman stated that the report already cited declared that each such case required to be decided on its merits. He himself was anxious that seamen should have good ships in which to work. Employment of foreign seamen was largely a matter of climate, and to substitute white labour for lascar labour would be an expenditure in human life and health.

The Bill was read a second time by 384 to 121.

Boarding-out of Mental Patients.—Sir Hilton Young told Dr. O'Donovan, on December 5th, that the boarding-out of rate-aided mental patients was receiving the attention of the Board of Control, particularly in view of schemes which were being put into operation experimentally by certain local authorities. The practice in England could not be accurately compared with that in Scotland, where conditions and the statutory provisions differed.

Corporal Punishment.—Sir John Gilmour told Mr. Bernays, on December 6th, that the experience of the prison medical authorities afforded no ground for the suggestion that corporal punishment was liable to result in serious physical injury. A prisoner had seldom to be admitted to hospital at all after undergoing such punishment. He knew of only one recent case in which a prisoner's suicide was attributable to the prospect of corporal punishment. He could not regard this case as furnishing grounds for an inquiry into the question.

Small-pox Isolation in India.—Sir Samuel Hoare told Mr. Groves, on December 6th, that the treatment of small-pox cases in isolation hospitals in India was rare, and, so far as he knew, was nowhere compulsory. The number of small-pox patients so treated in British India during the years 1928 to 1932 was: 1928, 3,784; 1929, 1,542; 1930, 2,126; 1931, 1,350; 1932, 4,493.

Model Diets for School Children.—On December 10th Mr. Salt asked whether, to avoid malnutrition in children of school age, the Minister of Health would consider drawing up and publication of model diets, to serve as a guide to parents. Mr. Shakespeare said the preparation of diet schedules was a matter in which account had to be taken of local food customs and other circumstances. It would be impracticable to produce any schedule of universal application. Most of the information required for the construction of suitable diets for any groups of persons would be found in the published reports on the "Criticism and Improvement of Diets" and on "Diets in Poor Law Children's Homes," by the Advisory Committee on Nutrition, appointed by the Minister of Health.

Methylated Spirit Drinking in Scotland.—On December 11th Miss Horsbrugh asked which local authorities in Scotland had reiterated their appeals for further regulations to deal with the drinking of methylated spirits. Sir Godfrey Collins said that he had received a representation on the subject from a conference of the burghs of Aberdeen, Clydebank, Edinburgh, Falkirk, Glasgow, Greenock, Inverness, Paisley, Perth, and Stirling. He was willing to receive a deputation at an early date.

Stone-dust on Colliery Roads.—Mr. Ernest Brown, replying to Mr. Tinker on December 11th, said that the stone-dusting of colliery roadways had been enforced for nearly fourteen years. He had no evidence that the practice had been injurious to health. The suitability of the dusts used was constantly watched by H.M. inspectors of mines, and steps were taken to prevent the use of unsuitable materials. If Mr. Tinker would give him particulars of cases where harmful effects were alleged he would have them investigated.

Improved Conditions in Hopfields.—Mr. Shakespeare, on December 11th, informed Mr. Todd that the conditions found by the medical officer of the Ministry of Health who visited Worcestershire and Herefordshire during the recent hop-picking season showed noticeable improvement compared with the conditions found on the last occasion on which the areas in question were visited. There were still matters which the Minister proposed to bring to the notice of the responsible local authorities.

Thefts from Doctors' Cars.—On December 12th Mr. Thorne asked whether Sir John Gilmour was aware of the increase of thefts from unattended cars of doctors' bags containing drugs, and if he intended taking any action in the matter. Sir John Gilmour replied that there had been a few such thefts, but he had no grounds for thinking that they were other than ordinary cases of petty larceny. He did not think there was any action he could usefully take in the matter. The remedy was for medical practitioners and others who had drugs in their possession to take reasonable steps to avoid the risk of their being stolen. He hoped the publicity now given to the matter would lead to greater care being taken.

Public Health in Sunderland and Seaham.—Replying to Mr. Storey on December 13th, Sir Hilton Young said the statements concerning public health in Sunderland and Seaham, contained in a letter signed by Dr. G. F. Walker of Sunderland, and which had appeared in the Press, required investigation. The President of the Board of Education and he had jointly instructed qualified officers of the Board of Education and Ministry of Health to visit this area for that purpose. He had also communicated with the local health authorities concerned, and with Dr. Walker, asking the latter to put all his information at the disposal of the officers.

Removal of Mother after Childbirth.—Sir Hilton Young told Mr. Macmillan on December 13th that the commissioners inquiring into the death of Mrs. Molly Taylor of Manchester had suggested a minimum, not a standard, in stating that at least an hour should elapse before the transfer of a newly confined mother to an ambulance unless the doctor in charge decided otherwise. It was highly desirable that a longer period than one hour should elapse before the removal of a maternity patient after delivery.

Medical News

The Food Education Society has arranged a symposium on "Problems of School and University Diet" at University College, Gower Street, W.C., on Tuesday, January 1st, at 11 a.m., when the speakers will include Dr. G. E. Friend.

The British Red Cross Society will hold a course of seven lectures and demonstrations on tropical hygiene, on Mondays, Wednesdays, and Fridays, commencing on January 4th, at 9, Chesham Street, Belgrave Square, S.W.1, at 5.30 p.m. The course will cover such questions as food, clothing, and medical and sanitary precautions necessary for health in hot countries. The examination for the society's certificate in tropical hygiene will be held on January 21st. Fees for the course are 5s. for members of the Red Cross Society and 7s. 6d. for non-members.

The twenty-fifth annual exhibition of scientific instruments and apparatus arranged by the Physical Society will be held at the Imperial College of Science and Technology, South Kensington, on January 1st, 2nd, and 3rd, 1935.

The Colyer prize was founded in June, 1926, to commemorate the twenty-five years' service of Sir Frank Colyer as honorary curator of the Odontological Museum. The accumulated income of this fund may be used every third year for the purpose of awarding a prize for the best original work in dental science completed during the previous five years by a dental surgeon educated at any duly recognized dental school in Great Britain or Northern Ireland who has not been qualified to practise more than five years at the date of the award. Applications from candidates for the second award (to be made in July, 1935) should be submitted to the Royal Society of Medicine, 1, Wimpole Street, W.1, not later than March 31st, 1935, together with a general account of their researches, both completed and in progress. A document declaratory of the award will be presented with the prize. If no work of sufficient merit be submitted the prize will not be awarded.

The fifteenth medical salon for the exhibition of works of art by doctors, dentists, pharmacists, and veterinarians will be held at the Galerie des Beaux Arts, 140, Faubourg Saint-Honoré, Paris, from January 17th to February 3rd, 1935. A section of photographic art will be a new feature of the exhibition. Further information can be obtained from the organizing secretary, P. B. Malet, 46, Rue Lecourbe, Paris XV.

The 150th year of the Vienna General Hospitals will be celebrated next year. On May 18th the Chancellor will unveil a memorial to the first director of these institutions—Johann Peter Frank—and Professor Wagner-Jauregg will deliver the official address. From May 13th to 25th will be held a series of medical celebrations, festivities, and meetings of societies. In the mornings there will be the sessions of the fifty-fifth international post-graduate course of the Vienna Medical Faculty, and in the afternoons speeches will be given by the leading members of the profession in that city and elsewhere. In the afternoons also there will be visits to places of medical interest in the city and its environs. A medico-historical exhibition will be on view in the Natural History Museum, where there will be displayed illustrations of the growth in medical technique and the development of the great pharmaceutical industry, giving some conception of the range of the discoveries that have been made. The evenings will be given over to banquets, receptions, and performances in the State theatres. Detailed information can now be obtained free from the offices of the Vienna Medical Faculty, Alserstrasse 4, Vienna IX.

The tenth International Congress of the History of Medicine will be held at Madrid from September 23rd to 29th, 1935, under the presidency of Professor Gregor Marañon.

Laws relating to sterilization resembling in their essential points the German law on the prevention of morbid offspring have recently been passed in Norway and Sweden, and will come into force on January 1st, 1935.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS

Post-Herpetic Pain

Dr. H. LEWIS-PHILIPPS (Whitland) writes: A male patient, 70 years old, had a very severe attack of shingles some five weeks ago. He developed a severe rash over the left chest, the left axilla, and over the upper and mid-thoracic region of the back. The rash has greatly improved, and all that now remains is a brownish staining of the skin. Pain is very severe, and comes on in spasms, lasting for a few minutes at a time. The following drugs have been tried: (1) an aspirin, phenacetin, and caffeine citrate mixture; (2) allonal; (3) phanodorm; (4) nepenthe and paraldehyde (at night for sleep); and (5) omnopon grain 1/3 has had to be given once. Nepenthe seems to constipate him severely; paraldehyde suits him best, and he gets rest at night, but has to be given two drachm doses. He is a left-sided hemiplegic of some five years' standing, and some two years ago suffered from a fairly severe pyelitis, which has since cleared up. I should be grateful for any suggestions as to treatment and relief of the pain.

Aural Diphtheria

Dr. W. A. MAYNE (Taunton) writes: I was called to see a child because she had a cold. The nasal discharge being unilateral I took a swab. The mother had a slight sore throat, and so I took another swab. Both swabs were returned positive to diphtheria. I then found that another child had a long-standing discharge from one ear. I took a swab, and this, too, was returned positive to diphtheria. The father remains perfectly healthy. I have not before come across a case of aural diphtheria; and I wonder whether one should swab more frequently cases of aural discharge which do not clear up with ordinary treatment.

White and Brown Sugar

A CORRESPONDENT (London, S.W.) writes: Lest it should be thought that there is no satisfactory answer to the very pertinent questions about sugar asked by "A. F. S." in the *Journal* of November 17th (p. 928), may I be permitted to try my hand at a brief exposition of the situation? The substances intended for man's consumption—the proteins, carbohydrates, fats, vitamins, salts, and catalysts—are in Nature associated with each other and with other substances in such a way as to render them readily acceptable to the human economy. If, in his presumptuous ignorance, man tampers with these substances by cooking them, concentrating them, and refining them, he may retain the main proximate principle, but he deprives it of the associates which render it tolerable to the human digestive organs. If, for example, he concentrates a bison into a beaker he may get the major portion of the protein, but he will get very little else, save perchance a stomach-ache. That is an extreme case. That of sugar is almost as extreme, though not quite. Pure sugar ($C_{12}H_{22}O_{11}$) is a very irritating substance, as may be seen from the eczema which is so apt to trouble the hands and arms of grocers who handle it. In its natural state, as in the cane or in fruit, sugar is associated with various substances which dilute and mitigate

the irritant properties of the pure chemical. The reason why brown soft sugar is more digestible than the white is that the brown is much less refined than the white; the browner it is the cruder and the more digestible.

European Children in the Tropics

Dr. NICOL (Carshalton), in reply to Dr. James Gardner (*Journal*, December 1st, p. 1025), writes: Dutch women can stand the climate in Java no better than can English women. The first Dutch settlers married native women. Later settlers married, resulting in half- and quarter-casts. At present the "casts" approximating to European type are much sought after by thrifty Dutchmen as being wives who can stand the climate and produce children who can do the same. A Javanese half-cast woman of European type has a high opinion of herself, and rates herself equal to a white woman. This policy was encouraged by the Dutch Government, and is now reaping its own reward in the form of a mixed Dutch-Javanese population outnumbering the pure Dutch and only too anxious to govern itself. This problem is outside Dr. Gardner's inquiry, but I trust my explanation will be of help.

Dr. MAUD C. CAIRNEY writes from Bordighera: The Dutch women and children in Java and Sumatra struck me as looking healthier than their British neighbours in the Federated Malay States. They don't, however, stay in the coast towns all the year round, but go up for a change of climate to the excellent hill stations which are to be found at a height of 5,000 to 6,000 feet in both Java and Sumatra. In the F.M.S. the hill stations are lower and wetter, and the accommodation available cannot be compared with the efficiently run Dutch hotels. That difference alone has a lot to do with the maintenance or loss of health. Both in Java and Sumatra there are schools in these hill stations where children can be sent. The Dutch also live more comfortably than the British in Malaya when they are in the coast towns. Their houses are screened to keep out mosquitos, whereas in the F.M.S. screened houses are rare. They have a great variety of vegetables, grown on their hills; in Malaya it was impossible up to 1932, when I left, to get any variety in vegetables.

Solution of Bismuth Salts in Oil

"WANG" (London, S.E.20) writes: Bismuth sodium potassium tartrate is used for intramuscular injection in oil. The oil must be sterilized at 115° C. for a certain time. But how is this substance dissolved in the oil? It does not dissolve hot, cold, or ground in bit by bit. Is there any book which tells *how* it is dissolved? The injection is very painful when given in water.

LETTERS, NOTES, ETC.

Antitoxin for Puerperal Sepsis

Dr. HENRY J. THOMSON (physician-superintendent, County Maternity Hospital, Bellshill) writes: I have just observed that in Professor Munro Kerr's book, *Maternal Mortality and Morbidity*, 1933, the County Maternity Hospital, Bellshill, is referred to on page 226, stating that "masks and gloves as well as antitoxin are employed in Bellshill," and a footnote stating that an outbreak of sepsis occurred in this institution in 1932. These statements are not accurate, and may be misleading to those who desire to prove the usefulness of antitoxin. The first case of the epidemic occurred on November 4th, 1932, and the administration of antitoxin was suspended from September 7th of the same year. I shall be pleased if you will kindly allow space for this correction in your next issue.

The Microscope in Modern Life

The microscope slide has evidently not lost its fascination, even for a generation accustomed to spectacular displays in picture theatres: witness the queues of interested people who followed one another on a round of a hundred microscopes throughout last week at the Central Hall, Westminster. John Milton, in *Paradise Regained*, wrote of the fair edifices to be seen in the "aery microscope"—surely almost the first reference to the microscope in literature (1655)—and certainly in such an assemblage of instruments there were "fair edifices" in plenty, which it was hard to believe were only the spinneret of the spider or the plumed palpi of the gnat. The exhibition was designed to illustrate the value of the microscope in recreation and education, and its indispensability, indeed, in research and industry. The industrial applications are manifold, and the microscope plays an essential part in the production of motor-car engines, the testing of steels, and the analysis of foods. A section of the exhibition was given up to specimens of medical or bacteriological interest, such as the small fibres of asbestos in the lung of a mine worker, a section of kidney showing anthrax infection, and so forth. The exhibition was arranged by Messrs. W. Watson and Sons, Ltd., assisted by the Quekett Microscopical Club—the largest amateur microscopical society in the world—the Photomicrographic Society, and Kodak Limited. For those interested in the microscope itself, apart from what it reveals, there were demonstrations of the methods of illumination and the manufacture of lenses.

Science and Religion

Dr. H. G. BAYNES (London, N.W.1) writes: The chorus of protest that has been aroused by Dr. David Forsyth's presidential address at the Psychiatric Section of the Royal Society of Medicine is not untimely. The psycho-analytical attack on religion can claim no kinship with the genuine spirit of scientific scepticism. It is a kind of fascism of the intellect that is shielded from its own doubts by a certain primitive *naïveté*. For primitive mentality is likewise peculiarly prone to assume that analogous things are, *ipsi facto*, identical. The use of analogy in psychological investigation has exactly the same technical justification as the use of dye stains in histology. For, without the application of appropriate mythological stains and associative analogies, many of the products of unconscious mental activity would be indecipherable. But Freud himself, in company with most of his followers, has regularly taken the symptom or dream material thus treated as being, thereby, proved to be identical with the mythic analogue. Certain features of the parent-child constellation suggested the application of the famous Oedipus stain, while certain characters of religious feeling were obviously inspired by the archetypē of the human family. In the former case the analogy of the infantile attitude to the parents with the antique mythic pattern is held to prove that every child is caught in the fatal pit of incest, while in the latter the continuity of the primal condition of infancy with the deepest sources of religious feeling is taken to prove that religious experience is nothing but reproduced infantile fantasy. A primitive, idiomatic mode of expression can never be understood by minds that mistake analogy for concrete fact. The complacency which accompanies this type of rationalization is particularly infuriating, because although the reasoning purports to be the modest voice of scientific agnosticism it is at bottom the expression of a primitive belief in the infallibility of the deductive scientific method as such. The Freudian method is certainly deductive, but are the deductions made in the spirit of science? The misuse of method is a matter of real scientific concern. It can be unwitting, like the case of the examination candidate who was perfectly certain that the tubercle bacillus was a red microbe because he had actually seen it under the microscope. The fallacy, then, does not lie in the use of the analogical method, but rather in a superstitious adherence to the deductive technique, as though the employment of a certain style of reasoning absolved one from all inquiry into the validity of one's premisses. This characteristic Freudian fallacy has done incalculable injury, even though medical psychology owes an immense debt to Freud for his invaluable clinical discoveries. Psychological research would undoubtedly gain a new and vigorous impetus in this country if a fully equipped scientific survey could be carried out with the aim of salvaging the valuable grains of fact from the welter of fallacious inference.

Ingrowing Toe-nail

A Correction

Dr. P. F. CHAPMAN (Taynuilt) writes: In my letter on the above subject in the *Journal* of December 8th (p. 1073), the words "treated by this method" in the last paragraph should be omitted. The method of treatment is not the cause of the suppuration, but is the quickest way of curing it.

Fourteen British teachers of cookery have written a booklet for the housewife called "Christmas Fare." Over fifty recipes are given, and the preparation of every dish is described in detail. Copies may be obtained gratis from almost every gas undertaking, or direct from the British Commercial Gas Association, 28, Grosvenor Gardens, S.W.1.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 34, 35, and 38 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 36 and 37.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *304*.